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JOURNAL
OF THE
MILITARY SERVICE
INSTITUTION
OF THE
UNITED STATES

VOLUME XLII.



BY DIRECTION OF THE PUBLICATION COMMITTEE.

BRIG.-GEN. T. F. RODENBOUGH, U. S. A., EDITOR.

MILITARY SERVICE INSTITUTION

GOVERNORS' ISLAND

1908

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JOURNAL

OF

THE MILITARY SERVICE INSTITUTION

OF THE

UNITED STATES.

"I cannot help plead to my countrymen, at every opportunity, to cherish all that is manly and noble in the military profession, because Peace is enervating and no man is wise enough to foretell when soldiers may be in demand again."—GENERAL SHERMAN.

Vol. XLII.

JANUARY-FEBRUARY, 1908.

No. CLI.

Ames Prize Essay.

HOW MAY PUBLIC OPINION CONCERNING THE
ARMY AND NAVY BE SO EDUCATED AS TO SE-
CURE TO THE SOLDIER AND SAILOR IN UNI-
FORM THE CONSIDERATION ORDINARILY AC-
CORDED TO THE CIVILIAN?

BY CAPTAIN E. A. HELMICK, TENTH INFANTRY.



ALTHOUGH it is not affirmed, there is in the presentation of this subject for the consideration of the members of the MILITARY SERVICE INSTITUTION a presumption of prejudice on the part of the people against the American soldier and sailor. That this presumption is correct, every military man will concede, and it may be confirmed also by the statements of a majority of the municipal authorities of those cities which are frequented by the enlisted men of either service. It is an evil which works deep injury to both army and navy, and in seeking a remedy one may consider himself worthily employed.

Before attempting to suggest any measures for the relief of the trouble it may be well to ascertain the cause of its existence. The search for this leads one back into our colonial days, for it was there that antipathy to regular soldiery began to be implanted in the American mind. "During the Revolution the intense feeling of opposition to a standing army almost wrought the ruin of our cause. Since then this feeling has been diligently kept up and has formulated itself into the maxim that 'A stand-

ing army is dangerous to liberty'."* Washington, in writing to a friend of this feeling against standing armies, states: "The prejudices in other countries have only gone to them in time of peace * * * It is our policy to be prejudiced against them in time of war * * *"[†] The feeling against the services, therefore, is an inherited one and it has continued, though it is hoped with diminishing strength, to the present day. The constitutions of many of the States contain provisions voicing this sentiment. Our soldiers and sailors are forbidden the exercise of the franchise and are therein classed with uncivilized Indians, minors and the weak-minded. It was to be hoped that such exhibition of prejudice in the fundamental law of our States would never again be repeated, but the latest applicant for admission to the privilege of Statehood in our nation has continued this unjust discrimination against a class of men whose members should be honored rather than degraded.

Strangely enough, in spite of this feeling of mistrust, no nation has ever exhibited a stronger admiration for its soldiery than the American people. The army has always been the surest channel through which to attain the highest political preferment. Parks and public squares abound in statues to the memory of our soldiers and sailors. Let the safety of our country be threatened or its honor assailed and the entire land resounds with praise for the man in uniform. But this admiration is short lived, and is soon replaced by neglect and distrust. Is this the fault of our people, or is the cause to be found in the army and navy themselves?

In pursuing this subject, it will be profitable to consider what manner of men our soldiers and sailors are; why they enter the service of the Government; what are their pay and allowances, and what their expectations and ambitions. The records of the recruiting service show that about 90 per cent. of the men enlisted are native born, while 10 per cent. are men of foreign birth who have been naturalized or who have declared their intention to become so. As to occupation, about one-fourth of the original enlistments are made from laborers; then come mechanics, teamsters, farmers, clerks, etc., practically every calling being represented. While in education the men who enlist do not stand high, neither are they ignorant. All but a small majority have left school at about 14 years of age;

*Military Policy of the United States.—Upton, page 16.

†Military Policy of the United States.—Upton, page 38.

about 10 per cent. progress as far as the high school; a somewhat smaller per cent. do not pass the primary grades, while the remainder complete their schooling in the grammar grades. In their personal habits about 80 per cent. drink moderately before their enlistment, and 20 per cent. do not drink at all. The Annual Report of the Secretary of War for 1906 shows that of the 89,185 applicants for enlistment, only 23,451, or 26 per cent. were accepted. The enlisted men of our army and navy are, therefore, selected men, young men of good physique, fair education and of good habits in so far as the judgment of the recruiting officer can determine. They are *not* criminals; they are *not* weak-minded, but strong, healthy specimens of young manhood, neither better nor worse than thousands of others from whom they are selected. They enlist because it is a natural step for a youth to take; the military instinct is strong in young manhood and the services offer tempting opportunities for travel and adventure. As pay, they are given \$13 per month with a moderate increase for length of service, together with food and clothing. If they are attentive to duty, they have the grades of non-commissioned officer of the line open to them, and if they are ambitious and have improved their opportunities for education, they may hope to attain the grade of post non-commissioned staff-officer, or aspire, with reason, to reach the grade of commissioned officer. But that military life is not all sunshine, that there are features that are deeply disappointing, the large percentage of desertions and the lack of recruits bear constant witness. One of the most potent causes of this dissatisfaction is stated in the subject assigned for this paper. A man must be a poor creature, indeed, who is not affected by a thrust at his pride! To remove this prejudice will require much time and careful, sustained effort, for it involves a change in public opinion, and it may as well be stated at the outset that the effort must come from the services themselves. This will be difficult, but it is not impossible. Not many years ago the feeling in the Organized Militia against the Regular Army was very strong. There was very little intercourse between the two bodies; neither appreciated the good qualities and intentions of the other. Now all this is changed; ill-will is replaced by friendship, mistrust by a desire for mutual assistance and this has been brought about entirely through the efforts of the services.

Our people have been little interested in the army and navy in time of peace; this is particularly true of the army. They

have been firmly convinced that sufficient volunteers can be organized and sent to the field in time to meet any emergency that may arise. They have refused to believe that there is anything difficult in the task of training an army. Any politician with influence and following sufficient to raise a company, a battalion or a regiment has had little difficulty in obtaining a commission proper for such a command. The average American believes himself to be a fighter by nature; he believes that soldiers are born, not made, and he has an abiding faith that the gift is his by inheritance.

The public is, likewise, little interested in military history. Those who have made a careful study of military campaigns with a view of drawing lessons from them have waited in vain to see the results of their labors published.* To such a people a standing army seems an unnecessary expense, and those who enter the service are classed as useless servants who only add to the burden of taxation. *The impression is general that the men of our army and navy are idlers.* It is necessary, therefore, to correct this, for it never has been true to any extent, and it is less so to-day than ever before.

The length of the present enlistment is three years. It requires these three years to convert the average youth into a disciplined soldier. The first requisite of a soldier is discipline; the second is an ability to shoot with a degree of accuracy which will make him valuable in action. No one who has had an extended experience in training the American youth in being a soldier will claim that more real progress is not made in his third year of service than in either of the other two. What he has hastily learned in his first two years becomes merged into habit in the third. His progress in marksmanship is certainly as marked in his third year as in either of his first two years. It is true that Germany and other European countries have reduced the period of instruction for certain arms of their service to two years. This is done, however, not because the third year is not needed but because the expense of maintaining so many men under instruction for an additional year is greater than the government can bear. Moreover, the material obtained for the European armies is more easily transformed into disciplined bodies than that which is received for our army. It is not

*General Upton's military studies received little attention during his lifetime. They remained practically unknown even to the professional soldier until published by Secretary Root in 1904.

claimed that the youth of Europe makes a better soldier than the American youth, but he certainly learns the requisites of discipline more quickly, or rather he is not so ignorant of them when he enters the service as the American.

One-third of the enlisted strength of the army is renewed each year, and two out of every three men enlisted have had no previous military training and their education must begin at the very foundation. To train these men thoroughly would require the entire three years were the duties required of them purely military only, but under present conditions they have to perform many non-military duties incident to the administration of the post. Any one who will take the trouble to make an examination will find ample evidence that our army and navy have entered upon a new period of development. A broader policy is being pursued than ever before; the navy is being constantly increased; laudable efforts are being made to make the army a model in every respect; a carefully prepared course of instruction is being pursued from year to year; the Organized Militia of the various States is receiving instruction, encouragement and financial support from the Federal Government; large camps of instruction have been instituted where the Regular Troops and Organized Militia are brought together and work in harmony in all the different phases of practical instruction, and steps are being taken to form a reserve corps available for an emergency and in which it is hoped to be able to utilize the knowledge and experience of the men who are being discharged from year to year from the army. It has not been possible to convince Congress of the wisdom or expediency of the measures necessary to fully carry out this new policy of usefulness, but that so much has been accomplished shows that interest in the services is at least increasing and gives promise of future assistance. The army and navy are constantly occupied in preparing themselves to defend the honor of the Government should the necessity arise, and any impression that their officers and men are wasting their time in idleness and dissipation is born of prejudice and is unworthy of the American people. There are adverse conditions, however, to be found in our services which certainly have a tendency to lower the position of the enlisted men in the public estimation. The most important of these are the following:

Insufficient Pay.—The recruit enlisting in the army receives \$13 per month, and his food and clothing amount to about as

much more. The lowliest laborer in civil life at the present time receives more than double this amount. When this rate of pay was established it compared favorably with the wages of like classes in civil life, but it is not now a just compensation for the services he performs. To-day a man's worth is judged largely by the wages he receives, and the rate of pay established for the enlisted men of our army long since ceased to be one which would command respect for its recipients.

Lack of Inducements for Remaining in the Services.—Again, if the Government would gain and retain the respect of the people for the enlisted men of the army and navy, it should take a deeper interest in their welfare. Men are asked to enlist, accept an inferior rate of pay and remain in the employ of the Government for a term of years without having the inducements held out to them which are offered to the men of the large armies of Europe where service is compulsory. It is true, as has been stated, that a man may hope to become a non-commissioned officer of the line, a member of the non-commissioned staff grades, or attain the grade of commissioned officer, but the increase of pay of the non-commissioned officer of the line over that of the private is so small that the position has little attraction for the men. It is considered by many not to be sufficient compensation for the increased responsibility which accompanies it. While the opportunities for promotion to the non-commissioned staff positions and to the grade of commissioned officer are reasonably good, only those men who have received a liberal education may hope to take advantage of them. The Government should follow the example of European governments and reserve a fair proportion of positions in certain classes of the Federal Civil Service for men who have served faithfully for ten years or more and who have been discharged with an excellent character. There are more than 150,000 of these positions carrying an annual salary of over \$1,000 and 50,000 with a salary of \$750. Under the present ruling only men discharged from the service for disability caused by wounds or sickness incurred in the line of duty are favored by being placed at the head of the list providing they reach a rating of 65 per cent. in their examinations. A late report shows only 415 employees appointed under this preference clause. The German Government reserves places in various classes of its civil service for honorably discharged men who have served faithfully for a period of twelve years or more. These classes include the department of

public roads, the post-office department, the department of railways, and others. In each battalion a school is maintained for the instruction of men who desire to take the necessary examinations. Can our Government reasonably expect to attract and retain good men in the services when its rates of pay are far inferior to those offered to like classes in civil life, unless it offers some inducements to offset the meager pay? The good men who enlist will not remain while the conduct of the inferior men injures the services and brings the good men into disfavor along with themselves.

The Relation of the Government to the Soldier.—The Government lays itself open to the charge of sharp practice in its method of attracting recruits into the services. The recruiting posters are all aglow with the bright side of military life—the pomp and circumstance of war. The man in full dress and dress uniform occupies a prominent position, even the wearer of the service uniform is set forth boldly, but where is he of the brown dress—the canvas fatigue uniform—whose implements are the pick and the shovel, the rake and the broom? He is not to be found even in the background, nor does the neatly uniformed man who stands in front of the recruiting station mention the never-ending fatigue of the army post as one of the attractions of the service. He knows that his superior is expected to obtain his quota of men and it is his business to get as many suitable ones as he can. Captain Johnson, in discussing the subject, “The Enlisted Man’s Contract with the Government—the Mutual Obligation is Imposed and How Its Violation (that is, desertion) May Be Avoided,” places fatigue, including extra and special duty as the first cause of the dissatisfaction leading to desertion. Few in the military service will dissent from this view. “I do hereby acknowledge to have voluntarily enlisted as a *soldier*” is a part of the contract that the man makes oath to in enlisting and it will be noted that the word soldier is emphasized by being printed in the enlistment paper in italics. He further swears to serve the United States of America “honestly and faithfully against all their enemies whomsoever,” and he does this cheerfully with a secret hope, perhaps, that he may have a speedy opportunity to fulfil his vow. Nowhere is he asked to serve as a laborer, yet this is required of him during a large part of his time. Is it surprising that he becomes dissatisfied, that this dissatisfaction affects his conduct and bearing and that these in turn help to establish a prejudice against him and the service he

represents? This evil is fully recognized in our army, and year after year authority has been requested to enlist men to do this work, but up to the present time it has not been possible to convince Congress of the advisability of granting the relief asked.

The New System of Identification.—Alarmed at the continued high rate of desertion, and with a hope of checking it, the War Department has adopted the “finger print and photographic system of personal identification,” and has directed that in addition to the present physical description and outline figure card, the photograph and finger prints of every man in the army will be taken and recorded in the archives of the department. Under the civil procedure only known criminals and those charged with crime have their photographs and finger prints taken so that society may be better guarded against their future depredations. The policy of the War Department is the reverse of this; to assist in the apprehension of deserters, or those who may desert, *all* men are required to submit to a system of identification which has become degrading because of its association with a degraded class. The motives of the department are not questioned in the adoption of this measure, but if its effects upon other men of the service are like those noted on the men with whom the writer is associated, there is little question that the ultimate result will be injurious rather than beneficial.

The Abolition of the Sale of Beer and Wine in Post Exchanges.—Congress, in deference to a small but influential class of American women, has deprived the enlisted men of the privilege of drinking beer or wine in their own clubs. If this enactment had resulted in preventing the men from obtaining *any* intoxicants there would at least be some reason for its existence. But it does not do this; what it does do is to compel those who *will* have their drink to go to places where they are encouraged to continue drinking and gambling as long as their money lasts. These men appearing in uniform in a drunken condition on the streets of our cities and conducting themselves in a boisterous and lawless manner are largely responsible for the prejudice which exists against our soldiers and sailors. They dishonor their uniform and bring discredit upon every man who wears it.

Lack of Respect for the Uniform.—The fact that the uniform of our services may be worn by men who have no connection with them detracts from the sentiment of respect in which it should be held both in the services and out of them. The enlisted men purchase their uniform from the Government and,

upon their discharge, may dispose of it as they see fit, and the man who acquires it may make such use of it as he pleases. The uniform should remain the property of the Government, and the man who dishonors it should be punished for this specific offense just as he is punished for carelessly injuring his arms or equipment. If the Government does not hold the uniform of the services in sufficient respect to guard it from improper uses, it can hardly expect the enlisted men to do so, much less those in civil life.

Neglect of the Families of Married Men.—Another condition which lowers the estimation in which the enlisted men are held by the people is the failure of the Government to provide quarters for the families of married enlisted men of the line. It is the policy of the War Department to discourage marriage among the enlisted men, but there are many of them who do marry, and often they are our very best soldiers. Excellent quarters are provided for the families of the post and regimental non-commissioned staff-officers, but if the enlisted men of the line marry they must provide as best they can for their families. The miserable huts which are to be found in the vicinity of our garrisons and which serve to house the families of the married men of the line of our army have long been a discredit to our service. The War Department would do well to recognize the condition as it exists and provide a sufficient number of suitable quarters for the families of these worthy men. The expense would not be great, and the service would be well repaid by the retention of a class of men which it can ill afford to lose. A man's reputation depends not a little upon the character of his habitation; compel him to live in a hovel and he not only loses his self-respect but he is lowered in the estimation of the public as well.

The Ration Not Sufficiently Varied.—It may, perhaps, be considered extreme to say that the ration of our enlisted men is not sufficient, but it is well within the truth to state that it is not varied enough. We have fondly repeated to ourselves that our army is the best fed army in the world, but however well its ration table may compare with those of other armies, it will not bear favorable comparison with the diet of men of the corresponding class in civil life. Butter and milk should be added to the ration. Few laborers would be content to live without these necessary food elements, and our enlisted men should no longer be deprived of them. The increased expense of their

supply would be more than repaid in the effect it would have upon the contentment of the men.

The Localization of Regiments.—The Government has neglected to avail itself of one of the strongest stimulants to public interest in the army by failing to localize its regiments. European nations divide their territories into military districts, and the men of each regiment come from the same locality. "What is everybody's business is nobody's business" is an old adage, and what is left to the interest of everybody is quite as likely to receive the careful attention of nobody. The deep concern evinced by the people of States and cities in the battle-ships and cruisers of our navy which bear their names demonstrates the power of this local interest. Can it be doubted that there would be an increased interest shown in our army if all the men of each regiment came from the same district, and the regiment bore the name of that district? It does not follow that the regiment should remain stationed in the district from which it is recruited; the interest of its home people would follow it wherever it went, and the men would have a constant incentive to bear themselves in a way to retain their good opinion.

In the above discussion those measures have been considered which, if adopted, it is believed would add to the welfare and contentment of our enlisted men, and the importance of contentment among the men of our services cannot be too strongly emphasized. *If the men are satisfied with the service; if they give it a good name when they leave it to go into civil life, it is only a question of time when the present antipathy must disappear.* It makes a vast difference whether the 35,000 men who are discharged from our army and navy each year carry away with them a good or bad report. There are other things, however, more directly connected with the discipline and conduct of the men which deserve to be noticed. A man may by his conduct gain the good-will and respect of those within and without the services and honor the uniform he wears, or he may degrade himself and disgrace his uniform. Good conduct is more important in the services than in civil life, for in civil life the evil conduct of a man reflects upon himself only, while the man in the army and navy who participates in a drunken brawl in a public place not only injures himself and dishonors his uniform, but brings discredit upon every man who wears the uniform, for the public does not distinguish between individuals wearing the same dress. I believe it will be acknowledged by every thought-

ful man that any prejudice which exists against the enlisted men is brought on largely by the conduct of the thoughtless and lawless men among them. The percentage of this class of men is not large, certainly not greater, nor is it believed to be so great as is to be found in civil life. It is because they wear the uniform and belong to the official class of the Government that they are singled out for special notice. The injustice of it is that all must suffer for the misconduct of the few. The remedy for the evil is something which officers responsible for discipline of enlisted men have been seeking ever since the services were established, and the fact that it has not been found is sufficient proof that the difficulties are well-nigh insurmountable. Yet there are measures which if followed will at least help to remove the trouble.

First, there should be more careful attention given to the dress and personal appearance of men going on pass. If men go into a city in neat uniforms, with white collars and polished shoes, they are much more apt to conduct themselves properly than they would be if they were permitted to go in worn and slouchy dress.

Secondly, all possible efforts should be made to teach the men to honor their uniform. Men who have been known to disgrace their uniform by drunken and disorderly conduct while on pass in public places *should not be permitted to leave the garrison in uniform*. This would teach them that their uniform is something to be respected, and prevent the evil effect of their conduct from being visited upon their companions.

Thirdly, there should be a good-conduct list kept in each organization, and men whose names do not appear on this list should not be permitted to go on pass together in parties. A number of disorderly characters in one party will go to an extent in their lawlessness that one or two would not think of doing. It is these disorderly parties of uniformed men from our army and navy that cause respectable men and women to avoid meeting our soldiers; they are answerable largely for the prejudice which leads occasionally to all uniformed men being deprived of the privilege of entering public places of amusement, and they are responsible, likewise, for the friction which is exhibited at times between enlisted men and the police. Under the influence of liquor they seem impressed with the idea that their uniform clothes them with a license to commit acts of lawlessness,

instead of being a mark of their official position which it is their special duty to guard with honor.

To recapitulate, the Government should offer a rate of pay which will attract a better class of men; it should deal frankly and honestly with those who apply to enter the services, fulfilling faithfully its part of the contract and requiring the soldier to do the same; it should require nothing of the men which injures their self-esteem or tends to lower them in the estimation of the public; it should not withhold from them in their own garrisons those privileges commonly enjoyed by men in civil life, and thereby encourage them to seek places where dissipation and debauchery are common; it should prevent the uniform from being worn by unauthorized persons and from being put to improper uses; it should provide comfortable and respectable quarters for the married men; it should provide as varied a diet for the men as is habitually used on the tables of like classes in civil life; it should make it an object for young men of education and ambition to enter the services and remain there by holding out to them the opportunity to enter the Federal Civil Service after they have served honestly and faithfully for ten or more years. Then, having done what it can to place the enlisted men on a plane of equality with those from whom they are selected, it should punish with severity any conduct which dishonors their uniform or lowers them in the estimation of the people.

Finally, the results of these measures should be to create a deeper public interest in the services, to replace the present indifference and neglect by sympathy and fellow-feeling—in a word, to bring about to some extent, at least, that education of public opinion which would assure to the soldier and sailor the consideration accorded to the civilian. The importance of the good-will and opinion of the people to the services has not been appreciated. In fact, we may as well confess that we have, in the past, considered that public opinion on military matters is of very little importance. A more mistaken course it would be difficult to pursue, for in following it, we lose sight of the fact that we are living in a democracy where every official, however humble or exalted his position, is a servant of the people whose good-will and opinion are necessary to the success of his undertakings.

Ames Prize—First Honorable Mention

HOW MAY PUBLIC OPINION CONCERNING THE ARMY AND NAVY BE SO EDUCATED AS TO SECURE TO THE SOLDIER AND SAILOR IN UNIFORM THE CONSIDERATION ORDINARILY ACCORDED TO THE CIVILIAN?

By MAJOR C. McK. SALTZMAN, SIGNAL CORPS.

I went into a theater as sober as could be,
They give a drunk civilian room; but 'adn't none for me;
They sent me to the gallery or round the music 'alls,
But when it comes to fighten', Lord! they'll shove me in the stalls.
For it's Tommy this, an' Tommy that, an' "Tommy wait outside."
But it's "Special train for Atkins," when the trooper's on the tide.

—Kipling.



IT has been well said that we are a patriotic but not a military nation. In the eyes of the majority of our people the honorable calling of the soldier or the sailor is not held in the high esteem with which it is regarded by the people of foreign lands. There are many reasons that explain this condition. Among the European powers the people have been accustomed for centuries to the presence of large bodies of troops; they frequently see grand military maneuvers and great naval demonstrations, and the showy uniform of the soldier and sailor is a familiar sight. Members of their royal families belong to their military and naval forces and give these services a certain prestige in the eyes of loyal subjects. To a large percentage of these people, high or low, a term of enlistment is compulsory. Their army and navy compel respect.

From the earliest days of our national history, our country has shunned large standing armies and, until recently, a powerful naval establishment. Our wars have been fought mainly by militia and volunteers, and the promptness with which thousands of brave educated citizens have always responded to the call to arms has created a republican impression that the professional soldier and sailor is not a necessity. The volunteer forces come into existence during a national crisis when the country is aflame with patriotic sentiment—at a time when all soldiers and sailors are held in high esteem. Upon the cessation

of hostilities the volunteer army is discharged, the high feeling subsides, and a sentiment grows to the effect that soldiers and sailors are no more needed. Our people are not accustomed to showy uniforms nor to the display and formality of military and naval ceremony. The area of our country and the extent of its coast line are great, and a very small percentage of our large population ever sees a soldier or sailor, whether of the regular establishment or of our militia or naval reserve. This lack of contact and unfamiliarity with the army and navy has resulted in great ignorance on the part of our people as to these two branches of the government service.

Due to this ignorance the professional soldier or sailor is regarded by a majority of our people as an unnecessary being who is fed and clothed by a generous government and who leads a life of comparative idleness. It is well known to the people that the enlisted man's monthly pay is very small compared with wages in the commercial world, and the people rashly decide that the enlisted man must be correspondingly incompetent and worthless to engage in service for such small compensation. Due to this ignorance the commissioned officers are quite generally regarded as "gilded satraps" with few duties, supplied by the Government with rations, clothes, horses, carriages and servants in addition to large salaries. Due to ignorance of the duties of the members of our organized militia, and of the great sacrifices of time and money which each makes each year in the discharge of his obligations to his Government, the National Guard is often derided, and in some States regarded as a luxurious expense. Due to this prevailing ignorance, a police judge withholds sentence to a convicted criminal provided that he will enlist in the army and navy, and due to this same misapprehension the Associated Press proclaims to the country the story of an unfortunate striker who, without work, without money, without prospects, without friends, as a last terrible resort has enlisted in the army rather than starve.

Thus it is that a series of conditions in our fair land have united in producing a growing sentiment which belittles the profession of the soldier and the sailor during peace times. As a result of this growing sentiment, the soldier or the sailor who enlists in his country's service under these conditions becomes an object of discrimination, and he has lately been excluded from many public places and from the enjoyment of many privileges which the general public enjoys not because of any

misconduct on his part, but because his uniform marks him as a member of a class of society which a growing sentiment regards as idle and unnecessary. The proprietor of a Western skating rink who excluded soldiers from his resort stated that he had no personal objections to soldiers, and that they conducted themselves as orderly as his other patrons, but gave as a reason for his action that he found that his civilian customers did not wish to skate on the same floor with soldiers in uniform.

A thousand officers of the army and navy have thought deeply on this subject, and have looked for means of relief. A number have urged the making of a Federal law which will prevent discrimination against the uniform in public places. Although such a law might be desirable, it would be of doubtful constitutionality. It would be difficult to enforce. It would not strike at the cause of the discrimination. The growing sentiment among our prosperous thousands against the uniformed enlisted man cannot be checked by law, and the enforcement of such a law as would compel the desired respect for the uniform at all times and in all places would not accomplish the desired result of raising the soldier and the sailor to the high place where he belongs in his country's esteem.

Instead of laws there must be other agencies at work which will *educate* the people to a proper respect and devotion to the uniform and to the service of which it is the badge. Instead of depending on laws, the army, the navy and the friends of both must wage a campaign which shall have for its object the development, in our land, of a healthful interest in the soldier and the sailor by the people whom they serve. Interest the people in the army and navy and there will be no need for laws to protect the uniform.

The people living near the large cities of our Atlantic and Pacific coasts are accustomed to the sight of soldiers and sailors, and are more or less familiar with the conditions of these two services, but in the great interior of our country, the greatest possible ignorance prevails to-day as to the life and the work of the personnel of the army and navy. A banker of a large city, a representative citizen of the Middle West, on visiting an army post recently, was astounded to find that regular soldiers worked with pick and shovel, with machinists' tools, with drawing instruments, with dynamos and motors from early morning until sundown—that labor was the order of the day, and that the "fuss and feathers" of drill and parade was scarcely notice-

able at the post. He expressed surprise that the Government was able to secure men for such a wide range of duties for the wages paid. He was similarly astonished to find that the day of the commissioned officer at that post was completely filled with arduous duties and perplexing situations. He freely admitted that for years that he had believed that the duties of soldiers and sailors during peace times were restricted to a few drills and parades, and that he had regarded the regular enlisted man as an indolent, bibulous fellow who enlisted to avoid working for a living. Although he had known many officers, and had found them men of education and of great honesty in financial transactions, he had always fostered the belief that the average officer was a creature of the ballroom, and had never pictured him in one day superintending the construction of three Government buildings, directing the survey of a reservation and managing the operation of a stone quarry in addition to his regular routine military duties.

These ideas previously held by the banker are held to-day by hundreds of thousands of the people of our land, not only with regard to the army, but also with respect to the navy. Could the people know more of the daily life and work of the men in their country's service, a different sentiment would prevail. Could they know of the amount of labor ranging from commonplace work to the most technical duties being daily performed by the enlisted men for the country, a thousand mistaken beliefs would be destroyed. Could the people know of the hardships of years of service in the cramped quarters of a war-vessel at sea, or of the privations and discomforts of a tour of duty in tropical Samar, they would no longer believe that the sailor or the soldier enlists to avoid the unpleasant duties of civil life. Could they be shown the small percentage of misconduct or misdemeanor among a thousand enlisted men as compared with that of a thousand civilians of like ability and education, the soldier and the sailor would no longer be regarded as an idler and a roisterer. The task of making our people acquainted with its army and navy is a duty before the personnel of both services.

Fifteen years ago the superintendent of a small Western railroad division was hedged about by an exaggerated show of importance and dignity, and as he rode over his division in a private car behind a passenger train, he was practically inaccessible to the general public. To-day he rides behind the local

freight, because the long stops at stations enables him to meet shippers and patrons. Fifteen years ago patrons of the road entered his private car only after much delay and with much formality. To-day he knows the grain dealer, the cattle buyer and the cranberry merchant at each town, and greets them with enthusiasm on the depot platform. For many years the railroads held themselves aloof from the people until a public sentiment against them grew up among the people and finally developed into various forms of railroad legislation.

There has been no pronounced disposition on the part of the army or the navy to hold themselves aloof from the people, but it is true that they have not become acquainted with each other. There is no occasion for officers or men of either service to rapturously fall on the neck of the grain dealer, the cattle buyer, or the cranberry merchant, but there is urgent reason that both use their endeavors to get all classes of people interested in the army and navy and to acquaint them with facts. The army and navy belong to the people, and if, by seeing more of each other, the people will become interested and acquainted with these two branches of the public service, let an effort be made to bring this about. In the case of the militia organization there is no discrimination against the uniform at the home station, because the people are acquainted with the organization. The home company or battalion is a part of the social life of the town, and its participation in passing events elicits admiration and enthusiasm. There is no reason why the regular army and navy commands should not become a similar factor in the life of towns. The post commander, the battalion commander, or the company commander of a military post can find innumerable occasions for their troops to participate in public functions and thus bring their organizations before the eyes of the people without seriously interfering with the rotation of the wheels of government. A regiment near a large city can thus enter into the city's life until the people will feel that the organization is "our regiment." When this has been accomplished, there will be no discrimination against the uniform in that city. The War and Navy Departments should similarly encourage this educational crusade by bringing organizations before the people whenever possible. It will cost a little money and will interfere with post fatigue, but the results will be remarkable.

Officers and men are not, in general, prone to appear in print except in the service periodicals, and then only on tech-

nical subjects of which the public have no knowledge. Little interesting accurate reading matter concerning the army and navy ever finds its way into the newspapers and magazines. Officers and men, by thousands, deplore the existing ignorance of the people concerning the life and work in these two services, yet few have ever attempted to write the story of the soldier or the sailor in the public prints. All are busy with a multitude of duties, and many think that they have not the suitable literary ability. There is no life so full of adventure, of sacrifice and privation as the life of the soldier and the sailor, and there is no class of reading matter more interesting to the general public than the plain story of army and navy life. Both services contain to-day a thousand enlisted heroes whose names are unknown to the public. Officers and men can recall a hundred stories of heroism and brave deeds which have never been put on paper. Libraries have been written on the battles of the Civil War, yet the intensely interesting stories of the scouts, the Indian fights and the twenty years of frontier life of the army on the Western plains in unrecorded. The men who made this Western history are passing from the scene and these stories will soon be forgotten forever. All these tales of the men of the army and the navy, if placed in print, would tend to interest the people and draw them closer to their soldiers and sailors.

It is a well-known fact that one disorderly soldier or sailor in uniform is particularly conspicuous, and attracts more attention than four disorderly civilians in the same vicinity. One drunken sailor in uniform conspicuously disporting himself before the public brands all sailors as drunkards in the eyes of many thoughtless onlookers. In the task of creating a favorable national sentiment in favor of the army and navy, the most strenuous steps must be taken to prevent the appearance of the one drunken man. The abolition of the canteen has increased drunkenness among enlisted men by driving them from their orderly social club to city dives, where they are amused, drugged with vile liquor, and conspicuously turned loose on the public street. The national sentiment against enlisted men has grown up since the canteen was abolished by the influence of a well-meaning society of conscientious Christian women who sought to improve the condition of the enlisted men. This effort to improve his condition, aided by the dive keeper's poisons, has materially helped in the upbuilding of the national sentiment against the men. The mistake of the society which

secured the passage of the anti-canteen law was due to a misapprehension or to a lack of knowledge as to real conditions. The officers who favored the canteen when that institution existed, and the officers who desire the repeal of the law to-day, desire, not to fill up the enlisted man with beer, but rather to draw him away from the city dives where he is poisoned, robbed and turned out in the street. Restore the canteen, allow the enlisted man his club, and he will avoid the long line of dives which are now luring him to destruction. Restore the canteen and it will be possible to keep the one drunken man off the street. The absence of the canteen sends the men with money to the near-by town to visit places of amusement and resorts, and the records of the Summary Court tell the story of a certain amount of disorderly conduct about pay-day. With the large amount of daily labor required of enlisted men, the general tendency of the average commander is not to restrict passes, but to grant as much freedom as possible to the hard working men. Although many conscientious officers take precautions to enquire into the conduct and appearance of men on pass, some do not. A large number good-naturedly expect a certain amount of trouble on pay-day. If the army and navy are to be brought more prominently before the people of our land, the one drunken man and the pay-day rowdy must be looked after.

In many of the foreign services the enlisted man does not walk out of barracks for recreation or go on pass with the ease and abruptness of the American soldier. Being granted authority to leave his quarters, he is required to do so wearing his best uniform, his best white gloves, and his best polished shoes. His compliance with this order is not taken for granted. He soldier reports his return to this same non-commissioned officer, who inspects the soldier's personal appearance and who does not hesitate to pick flaws and order the man to select a fresh pair of gloves or change a garment. On return to barracks, the soldier reports his return to this same non-commissioned officer, who notes his condition and appearance. If the soldier returns in a drunken or disorderly condition, the company commander is regularly informed. The strict enforcement of this regulation in the American service would be a death-blow to the solitary street drunkard and the pay-day rowdy. By the enforcement of this rule, the company commander would quickly learn his disorderly characters and could restrict their privileges, the indulgence of which brings discredit to the remainder of the

command. The enforcement of the regulation would send to town well dressed, orderly men seeking laudable recreation and permit the occurrence of no unhappy incident which would shock the public eye. The restriction would meet with favor among all the old and experienced soldiers and be objected to only by the objectionable characters. It should be required by a War Department order. No step is more necessary to break down the growing prejudice against the uniform of the soldier and the sailor.

The army and navy clamor for an increase in the enlisted man's pay—an increase which will shorten the wide gap in the scale of wages between the small compensation of the soldier or sailor and the large wages now received in civil life by men of his ability and talents. Not only will this increase encourage the re-enlistment of many of the old men who are now leaving the colors by hundreds to accept better pay in civil life, but it will also attract to the service a higher grade of men who will appear better before the public. In addition, it will create a new and better impression on the public mind. Among the many other misapprehensions and ignorant beliefs which the public hold regarding the army and the navy, it is believed by thousands of people, strange as it may seem, that all soldiers receive but thirteen dollars per month and that all sailors receive a similarly low compensation. The correct rates of pay can now be seen on the poster in front of the recruiting office, but few people in the length and breadth of this great land ever see this poster or know that the enlisted man can, by his own efforts, double or treble his monthly wages. Raise the pay and let the War and Navy Departments advertise through the recruiting bureaus and by other public means the various grades of pay in order that the public may know that all soldiers and all sailors do not receive the same small compensation, and that the enlisted man whose neat uniform seems so objectionable to some in the theater and in the street car may possibly be receiving a monthly pay check larger than that of the objector.

Raise the enlisted man's pay and seek the best grade of recruits; give him back his canteen club and keep the one drunken man off the streets of the city; keep his fatigue uniform in the background and see that he goes and returns on leave of absence wearing the best uniform that the Government provides. Let the public see their army and navy by permitting organizations to appear in the public events of towns as much as possible. The

soldier and the sailor are of the people and for the people. Let the people know more of these two men, of their daily life, their work, their play, their hardships, their past achievements, and of the services they are rendering to-day. Interest the people in their army and navy, and the unfavorable sentiment now prevailing against the soldier and the sailor will develop into a respect for the uniform and a devotion for the service it represents.

JOHN DOE.



ATTAQUE DE TRANCHÉE PAR LES DACES

"THE CONDUCT OF WAR."*

BY CAPTAIN MATTHEW F. STEELE, SIXTH CAVALRY.

All now recognize that the officer who has not studied war as an applied science, and who is ignorant of modern military history, is of little use beyond the grade of captain.—*Holseley*.



WE have chosen Von der Goltz's title, "The Conduct of War," as the distinguishing name of our general subject on account of its unpretentious simplicity and, at the same time, its comprehensiveness. Such a title as "The Art of War" or "The Art and Science of War" would, no doubt, have been equally as comprehensive, but they have an air of pedantry about them which does not consist with the modesty of our efforts; while had we chosen the term "Strategy" we might have found our research and our discussions hedged here and there by the definition of the word. Had we attempted to enlarge our field by adding the term "Military History" to that of "Strategy," we might have felt ourselves obliged to include more of the study of campaigns and battles than we have the time for.

But under the title that we have chosen, "The Conduct of War," we are not restricted or embarrassed in any direction. We can make as much or as little use of military history as we see fit; if we find ourselves passing beyond the bare domain of strategy into that of tactics, we are still within our rights; if we examine into the military policy of our people and their traditions, and even compare them with those of other nations, we are not overstepping our bounds. Another great advantage of our title lies in the fact that it has not, as yet, been incorporated into the lexicons of military terms and phrases. No time and thought need, therefore, be wasted in making a definition for it; the phrase defines itself; whole pages of definitions and explanations would not make its meaning a whit clearer.

To study military history is the best, and without the personal experience of commanding in war, the only way to learn the conduct of war. It is the way made use of by the German

*Lecture delivered at the opening of the course in "The Conduct of War," Department of Military Art, Army Staff College, Fort Leavenworth, Kansas, 1907.

general staff to-day. It was Napoleon's way. In his last maxim Napoleon says: "Study again and again the campaigns of Alexander, Hannibal, Cæsar, Gustavus Adolphus, Turenne, Eugene and Frederick. Model yourself upon them—this is the only way to become a great captain; to acquire the secrets of the art of war."

While this is true, much profit is to be gained from a careful study of the technical works of good authors, such as Jomini, Clausewitz, Derrécagaix, Hamley and Von der Goltz. These books, however, cannot so much teach the student the art of war as they can teach him how profitably to study military history, and from it to learn the art of war. They are really the alphabet of military history, which the student must learn before he can read military history intelligently.

Certainly one cannot learn the art of war by simply committing to memory the accounts of the operations of hostile armies in campaigns and battles, unless one is sufficiently acquainted with the principles of war to understand the combinations of strategy and tactics involved; to perceive the mistakes made and their consequences; to appreciate the reason why one side lost and the other won in every case.

No more will it make a master of the art of war to know the text-books by heart. Nearly all of them lay down merely what they call the principles or rules of war; but the study of military history will show that nearly every great commander has violated one or more of these principles, and yet been victorious. Henderson, the greatest English military writer after Napier, says, "The rules of war only point out the dangers which are incurred by breaking them." So we see Napoleon in the Marengo campaign violating his own pet maxim, not "to direct operations with lines far removed from each other"; we see Scott and Grant cutting loose absolutely from their bases; we see Lee dividing his army and sending Jackson on a wide-turning movement in the second Bull Run campaign. Yet they all won.

All sound principles of war have been determined by deductions from the operations of successful commanders; they were not known, or certainly not formulated, before the first campaigns were conducted. But to learn these principles first, and then to study military history and see the practical application of them, is to study the conduct of war by the inductive method, as it were. It is certainly an easier and quicker road for the student to take than he would find in rejecting all the text-books

and studying merely the campaigns of the masters, and from them deducting the principles for himself.

So we must be duly grateful to Jomini and Clausewitz and Hamley and the rest for their valuable works; but we must not expect these works to take the place of military history in our curriculum. These authors are the professors, so to speak, in the academy of war, and their books hold the principles; the great commanders are the practitioners in the business of war, and military history contains for us a record of the business as they have managed it. One is the theory, the other is the practice of war. And just as we find in other branches of special education, the professors and authors of text-books are not usually the best performers in practice. Neither Jomini nor Clausewitz ever rose to the command of an army, and General Halleck wrote a text-book called "*Elements of Military Art and Science.*" Yet many of the great masters of war have written; we have Cæsar's "*Commentaries*" and "Napoleon's "*Maxims.*" and much from Von Moltke's pen.

The chief fault to be found with most of the text-books on our subject is their "padding." Their authors appear to fear that the books will not give the student his money's worth without containing a large number of pages. Of a truth, the principles of war which history has proved to be sound are simple, and can be stated in few words; Napoleon's "*Maxims*" contain most, if not all of them, and fill but a few small pages; and Von der Goltz's little book is by far the best of all the recent treatises. Where the authors have, however, filled their pages with extracts from military history—accurate descriptions of operations—which illustrate principles, no fault can be found; but some of them have a tendency to head their chapters with a proposition, the statement of a principle, and then to twist and strain actual campaigns to make them fit the case—to illustrate the principles enunciated. The student must guard against this propensity of the text-book writer by acquainting himself with military history through its best authors.

Another fault of some of the text-book writers is a straining after mathematical relations; their pages are filled with geometrical figures, and the whole science of war is reduced to angles, curves and right lines. Little real profit is to be gained by the study of such books; too much in war depends upon chance, upon the moral and physical qualities of men, upon the weather, upon the time of day and the season of the year, upon

politics, upon a thousand other things and circumstances which cannot be expressed either by diagrams or equations.

In our own case our studies, to be of practical value, must have special reference to our own country; must take into account our own military policy, institutions, conditions and traditions, bad as they may be from a military point of view. Hence we can probably draw our most profitable lessons from the history of our own campaigns.

It is well for us to be familiar with the organization of the German forces, for example, and to understand their splendid system of recruitment and mobilization; but we can never hope for such in America, unless some great national catastrophe should befall to convince our people and their lawmakers of the necessity for them; which God forbid! Likewise, it is well that we should learn how such fighting machines as the German Army are handled; but it is more important that we should know how to handle such forces as our own national conditions must produce. The most successful commanders on the Union side in the Civil War were men who had not only got their military education and training by serving with regular troops, but who had also been buffeted about for years in civil life. Perhaps their success was due to a better knowledge of the American volunteer gained with their experience in civil life.

Even the excellent scheme of field orders that we are striving so hard to have ingrafted into the service to-day may have to be modified in case a large force of our militia should have to be called out. Such orders would be Greek to generals, and colonels and staff officers drawn from the ranks of political life and having no military education, like many of those of all our past wars. We also know that among the great nations of Europe experience has proved that about 150,000 men make the most suitable number for a single field army; that larger groups should be divided into two or more armies, like the Prussian armies in the Seven Weeks' War and the German armies in the Franco-Prussian War. But, considering the bad roads of the United States and its neighbors, and the inferior training and discipline of the troops we shall have in case of a great and sudden mobilization of the nation's strength, would such large groups be best for us? Our experience answers, "No." So, also, the European corps, divisions, brigades, regiments and companies are all larger than the corresponding units have ever been

in our service in actual campaign; they are too large, according to our experience, to suit our conditions.

The problem which lies before the student in our service, especially before the General Staff, is to determine precisely what are our actual conditions; what ways and means would be available in case of war; what difficulties from within would be encountered; and then to base all plans upon actual conditions as they find them. And furthermore, every one of us should do all that he can, in his own small way, continually to better the conditions.

The most important part of the conduct of war is what takes place in time of peace; the preparation beforehand. This is, of course, more a fact to-day, when hours and minutes count for so much, than it was in the days before steam and electricity. In case of war between Germany and France, a matter of three days' start in the mobilization of their forces would decide which of the two nations should take the offensive and invade the other; the question would be determined by their comparative preparedness.

Never before to-day was the conduct of war so much like the conduct of any other gigantic business, such as a great railway system, for example; never before was a technical knowledge of the duties, a thorough military training and education so necessary to the agents of the business—the officers and soldiers. And this knowledge must be gained beforehand, in the school of peace; but short time will there be for apprenticeship after war begins.

Formerly the outcome of a campaign depended mainly upon the genius of single commanders; to-day it depends mainly upon the efficiency of the armies. But the efficiency of an army depends mainly upon the quality of its officers from the highest to the lowest. For any office in the military service, whether of the line or of the staff, search should be made nowadays, not for a brilliant soldier, not for a genius, but for one that knows thoroughly the duties of the office.

Precisely as the officials of a railway are judged should those of an army be judged. Who ever heard of a "brilliant" railway manager or superintendent? The terms do not seem to fit each other. We speak of a competent, capable or able superintendent; that means a man who knows how to perform every duty connected with his office and how every duty of his subordinates should be performed; who is full of energy and capacity for hard

work; who holds every man under him to the strictest performance of duty, yet has the knack of getting on with both his subordinates and his superiors; who has an eye single to the interests of the railway he is working for, and who runs his office as a single cog or group of cogs in the great machine. He knows that if his cog slips, or goes too fast or too slowly, it will wreck the whole system.

A similar test should determine the fitness of the officials of armies, and does determine it in such armies as the German and the Japanese. Who can point out the "brilliant" generals of the Japanese armies? We have heard nothing of Marshal Oyama's genius, or of the brilliancy of Nogi or Kuroki or Nozu or Oku. Who can say which one of them performed his part best? They worked all together for the common end, each turning his own wheel in the great machine, so as to keep the speed ordered by the president of the company, or rather by the board of directors—that is, the Japanese general staff. There were no grand-stand feats and no grand-stand generals; there were no laggards. These two classes of commanders, grand-stand generals and laggards, both, more or less ignorant of the duties of their office, were the agents of most of the strategical and tactical blunders made during our great war; consequently of the defeats. It was due mainly to them that we find so little concert of action—team work in the battle tactics of that war.

Most of the works on the conduct of war are divided into two parts, one devoted mainly to the subject of strategy and the other to tactics. The first usually embraces, also, a discussion of special topics, as military policy, recruitment, mobilization and organization of armies, logistics, etc., which, though not strictly comprised in the usual definitions of strategy, are still nearly akin to it. We are to consider all these subjects in our course.

Modern military writers, from Jomini down to our own lamented Wagner, have nearly all undertaken to define the word strategy; they have given us definitions as various as the writers were numerous. Yet not one of them has really defined the term; each author has merely succeeded in announcing to his readers what he wants them to understand him to mean, when they meet with the word in his treatise.

Of a truth, the word strategy cannot be defined; its meaning must be arrived at by sort of process of absorption. No two students will get precisely the same apprehension of the word.

Indeed, like hundreds of other words pertaining to sciences which are ever in a state of evolution—for so the science of strategy is despite its vaunted “immutable principles”—the word strategy is gradually but continually undergoing a change of meaning. Thus, to go back to the original Greek word, it meant literally, “the office or dignity of a commander, generalship, a pretorship, government, province.” (*Century Dictionary*). Compare these simple definitions with any of the long, cumbersome definitions evolved by our military writers and see how different their meanings are.

So we will not undertake to define strategy. The term cannot even be strictly held to a military sense; there is a political as well as a military strategy, and they both fall within the scope of the conduct of war. Thus, when the Japanese and the Russian Governments were at grips in their last diplomatic struggle, before the outbreak of hostilities, was not the Czar making use of every available art of strategy to gain time to strengthen his forces in Manchuria? And was not the Mikado employing all his means of strategy to bring about a decision before those forces could be strengthened, and more especially before the ice should break and release the Russian fleet at Vladivostok? And Japan's political strategy was as decidedly offensive, and Russia's as decidedly defensive, as was the strategy of their respective commanders later in Manchuria.

In studying the history of campaigns that have taken place, the strategic principles involved stand out to view so plainly that the student often wonders, when violations of them appear, how the commanders responsible could have failed to appreciate them. They all seem simple enough to run and read, and plain enough to be seen at a glance, without the light of a military education or an experience in war. But the student must not forget that his view of the situation is much clearer than was that of the commander in the field. He can see everything, while they, like the players at *kriegspiel*, were separated by a screen.

“If,” said Frederick the Great, “we had exact information of our enemy's dispositions, we should beat him every time; but exact information is never forthcoming. A general in the field literally works in darkness, and his success will be in proportion to the facility with which his mental vision can pierce the veil.” (Henderson.)

There are two faculties which a commander ought to have: first, the faculty of rightly judging the condition, situation and

intention of the enemy, from all the facts, reports and rumors, corroborative and contradictory, which he receives; the power of rightly "estimating the situation." Second, having rightly estimated the situation, the faculty of deciding what is the best thing to do. They are really two distinct faculties. One is the faculty of perception and deduction; the faculty of sifting information and forming right inferences. The other is the faculty of invention. They are both founded on a knowledge of the business of war. Yet a commander may succeed without either, provided he has a staff that possesses them.

There is another faculty or quality of the great commander, however, which cannot be supplied vicariously by his staff; it must be his own by gift of nature and culture. It is that quality which Spencer Wilkinson in his valuable little book, "The Brain of an Army," describes as "the inner calm which neither great occurrences, nor danger, nor responsibility can disturb." It is the distinguishing quality possessed by General Grant and Marshal Oyama. It is a complex quality made up of many others, chief of which are a moral and physical courage of the highest order.

After these, the quality which stands out most conspicuous in the records of great commanders is *activity*. History does not mention a really great soldier that was indolent. Laziness and achievement in the armed struggle are as incompatible as laziness and achievement in the industrial struggle. But when a soldier possesses the faculties and qualities here enumerated he is the military genius, the Alexander, the Hannibal, the Napoleon. He needs but opportunity to make history and a fame immortal.

A favorite dogma of writers on strategy is that its great principles never change; that they are the same to-day as at the time of Alexander the Great. However this may be, the means of applying them have undergone such changes since the time of Alexander, but chiefly since the time of Napoleon,* that the principles themselves in some cases appear changed. Thus the possession of a geographical line, naturally strong, or made so by artificial means, for a base of operations, was a fixed principle of Napoleon's strategy. But we know that the possession of a system of railways reaching back into the heart of an army's own country does away with the need of such a base in our day.

*Replacing catapult and bow with cannon and musket may not have affected strategical operations, but the same cannot be said of steam and electricity.

It is still a principle of strategy to conceal one's movements and intentions from the enemy and take him by surprise; but it is a principle well-nigh impossible to carry out in this day of the electric telegraph and the newspaper correspondent. In some of Napoleon's most brilliant campaigns, such as those of Marengo and Ulm, he was able to move entire armies across neighboring states and over the greatest mountains and rivers of Europe without the news of the movement reaching his enemy. Nothing of the kind would be possible in Europe to-day. Von Moltke, in 1870, learned of MacMahon's movement for the relief of Bazaine through Paris and London newspapers.

The element of time is no more important to-day than it was formerly in the operations of strategy; but to-day it is measured in days and hours, whereas formerly it was measured in months and weeks.

In the wars of the past, strategy counted for its success mainly upon the ability of the supreme commander; to-day it counts mainly upon superior preparation. When the Mikado was sure that the preparations which he had been making for ten years were complete, and were superior to those of Russia in Manchuria, he did not question whether or no Oyama was a better general than the Czar would put at the head of his forces; and the outcome would likely have been just the same if any other Japanese general had been in Oyama's place. Such was not the case when Europe was struggling with the French under the leadership of Napoleon. Nowadays the general staff, "the brain of an army," can take the place of genius in the commander.

We know that Napoleon rigidly adhered to the rule of concentrating his army before it arrived within striking distance of the enemy, while Von Moltke did not concentrate his until the very day of battle at Königgrätz. The Japanese followed the example of Von Moltke rather than that of Napoleon, and they also were victorious.

We have seen what success Napoleon and Stonewall Jackson and Sitting Bull,* with small, swift-moving forces, could make

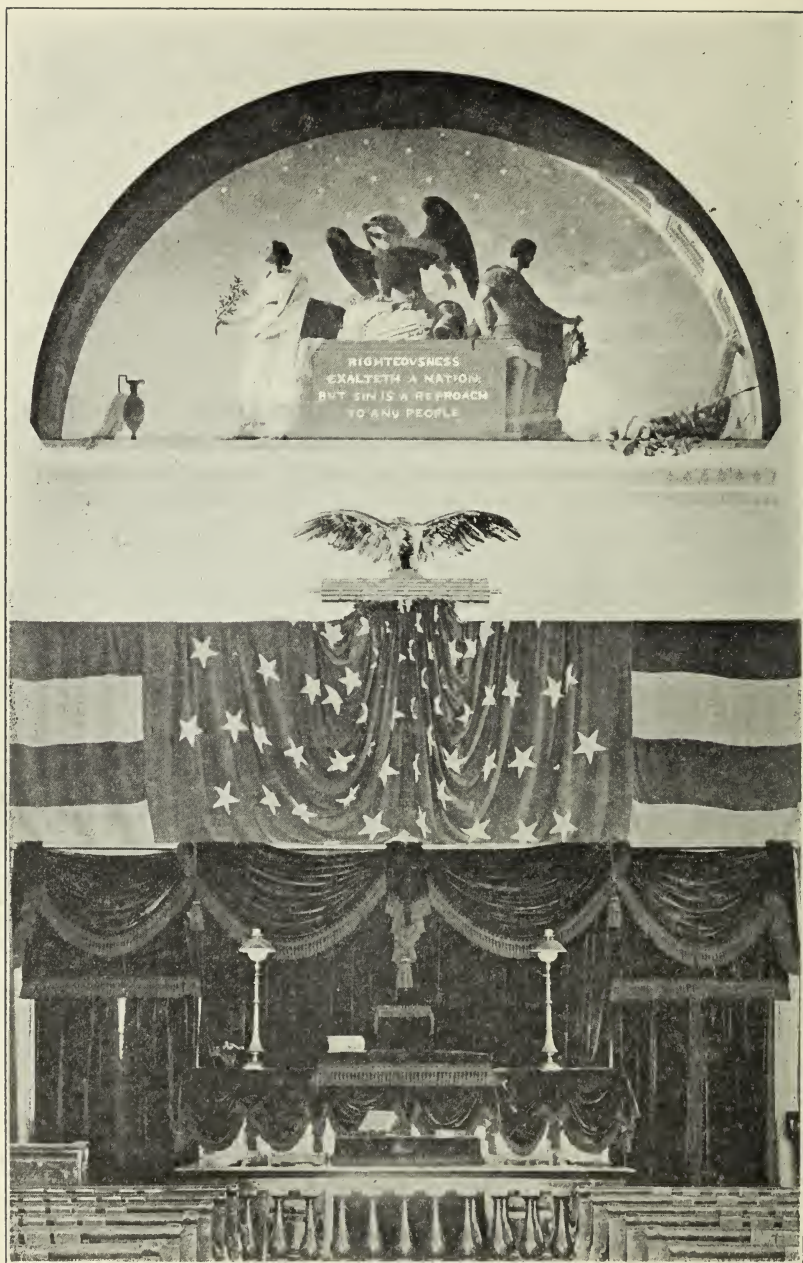
*In the summer of 1876 two columns of troops moved against the hostile Sioux led by Sitting Bull or Crazy Horse—it is not certain who was their leader. General Terry commanding one column marched down from the north; General Crook commanding the other marched up from the south. The Sioux were between them and had the interior lines. On the 17th of June they attacked Crook in overwhelming number, on the Rosebud River, and defeated him; then they turned north, and, on the 25th of June, attacked, and literally slaughtered, a large column of Terry's divided forces under Custer, on the Little Big Horn River, just thirty miles in an air line from where they had defeated Crook. Neither Napoleon nor Jackson ever made any better use of interior lines.

of interior lines. Yet how disastrous interior lines proved to Benedek in 1866. And this was not an accident due wholly to Benedek's incapacity. Von Moltke was aware, beforehand, that the Austrians would have the interior lines, and he did not base his dispositions upon a foreknowledge of the Austrian commander's incapacity. He believed when he made his plan that, all things considered, the strategical advantages were on the side of the Prussian Army even though it had the exterior lines.

Possibly the most distinguishing characteristic of modern strategy is its simplicity. With such large forces as those engaged in the Franco-German War, and in the late campaign in Manchuria, it would hardly be possible to execute complicated movements and combinations. The whole strategical project of the Germans in 1870 appeared to be to crush the French as speedily as possible with superior numbers and means, always working against their flank, striving to turn it and to cut off their retreat; never giving them a moment to collect themselves. The strategy of the Japanese was hardly more than a following after that of their prototype, the Germans. They were slow in their movements, they did not follow up their victories promptly, and they never were able, if they ever seriously tried, to cut the Russian line of retreat.

There is one principle of strategy, however, which has undergone no alteration either real or apparent; it is the one of which the tersest and aptest definition is the illiterate one attributed to General Forrest, namely, "To git thar fust with the most men"; or, to quote Von der Goltz, "To be the stronger at the decisive point is the object in which the whole science of war finally terminates."





"PEACE AND WAR."

Painting by Robert Weir in Chapel, West Point.

ART IN THE ARMY—A RETROSPECT.

BY BRIGADIER-GENERAL J. P. FARLEY, U.S.A., RETIRED.



IN justice to myself, let me state that the idea did not originate with me to write a thesis on the subject of Art in the Army, but was suggested by a letter of the Secretary of the MILITARY SERVICE INSTITUTION, dated August 19, 1907, addressed to me, in which I was requested to write a short sketch of men in our service who are remembered for their skill with the pencil, the most prominent of those mentioned by him being specified in order of seniority in years. He tells me that in a recent number of our foreign exchanges he notes that an exhibition was held in Paris of works of art by officers of the French Army, and that he believes "we have several officers still living in our service of noted artistic talent," of whom he requests me to speak, suggesting that as I have before this "furnished interesting papers for the JOURNAL on subjects with which I am familiar, he believes that this subject may be one of the same character."

It is quite true that I have served as Principal Assistant Professor of Drawing at the United States Military Academy under Professor Weir, and in the years (1865-66-67) following the Civil War, and this may in some measure qualify me for the task set.* If I were thoroughly versed in art I should prefer to ignore the word "task" and call it "a labor of love."

And so the French Army and Navy, as I am given to understand from the *Figaro*, contain a not inconsiderable group of artists who contribute each year to the regular Paris salons. "Among these may be mentioned M. Doigneau, pupil of Jules

*Capt. Robert L. Eastman, U. S. A., Principal Assistant Professor of Drawing, left West Point March 17, 1865, and died the following November. On March 18th I was relieved from duty with the Army of the Potomac by telegram from the Adjutant-General, assigning me as Principal Assistant of Professor of Drawing, and given charge of the Department of Drawing, U. S. M. A., for one year, during the absence of Professor Weir, from sickness.

Lefebvre, and Tony Robert-Fleury, whose 'Ronde des Petites' attracted much attention at the Champs-Élysées salon last year; and Captain Etienne Buffet, pupil of Franck Bail, whose picture 'La Repasseuse,' in the same salon, was also a success. Meissonier and Edouard Detaille, it will be remembered, were also officers in the French army."

The question now recurs—what does our army contain in the artist line, and what has it contained of men who could in any sense have aspired to be called artists?

EARLY TEACHERS OF DRAWING.

By act of Congress, February 28, 1803, Francis Deseré Masson, born in France and appointed from New Jersey, entered upon the duties of "Teacher of Drawing" at the Military Academy, July 12, 1803, and resigned the position on March 31, 1812.

As there were but few cadets at the Academy during these years, and these were of ages ranging between twelve and thirty-four, Masson held the position also of principal teacher of French.

Christian E. Zeller was appointed Assistant Teacher of Drawing on September 1, 1808, and served as such to April 30, 1810, and when appointed, or reappointed, rather, July 1, 1812, it was to the position of the head of the Department, in which capacity he served until January 5, 1819. Mr. Zeller was also born in France and appointed from New Jersey.

At this last-named date, Thomas Gimbrede, a Frenchman by nativity, was appointed from New York to succeed Mr. Zeller, and held his position until his death at West Point, N. Y., December 25, 1832. He thus served during the greater portion of the administration of Brevet Major Sylvanus Thayer, which latter officer gave the Institution "whatever of reputation the Academy may possess throughout our country and abroad." Colonel Thayer (his local rank as superintendent being that of colonel) was an officer of engineers. His long term of duty at the Academy between the dates of July 28, 1817, and July 1, 1833, may be accepted as evidence of his great efficiency.

From the "Memoirs of John H. B. Latrobe," son of Architect Latrobe of the Capitol Building in Washington City (a cadet pupil under Gimbrede) may be gleaned something of Mr. Gimbrede's qualifications, and this is confirmed by what my



LIEUT. JOHN FARLEY, U. S. A. (*by himself*).

father (John Farley) had to say to me before I entered the Military Academy as a cadet, in 1857.



J. F. (1823).

Latrobe and Farley were the assistant teachers of drawing under Gimbrede when they were cadets of the first class—the former 1821-22, and the latter 1822-23. They received (as was the custom) ten dollars per month extra pay, were excused from all military duty and wore the double row of bell buttons, in accordance with the regulations for the government of the United States Military Academy.

The natural talent for drawing evidenced by these young men was thus officially recognized while they were still cadets, before they had attained the age of eighteen years and were graduated from the Academy.

In speaking of Gimbrede, Latrobe has said that “he was imbued with a love of art—familiar with all its processes—a most competent instructor and one who took

great interest in his pupils.”

Both Latrobe and Farley well remembered and later enjoined upon their own pupils the teachings of “Old (J) Gim,” as he was affectionately dubbed, that “trees should be represented so that birds could fly through them and flesh presented in a manner to rebound from the pressure of the finger.”

Cadet Latrobe, in his memoirs, states that he embarked on a sloop from New York in the month of June, 1818, and that twenty-four hours thereafter he was literally dumped on the slippery rocks of Gee’s Point landing from a small boat in tow of the sloop while they were gliding under a strong flood tide by the point. “Jump,” the captain cried out, and over he jumped, his trunk being pitched after him and narrowly escaping a watery grave. Imagine, kind reader, the plight of this lad of fifteen summers who had just broken away from his mother’s apron strings—the world of West Point all before him and he solitary and alone, stranded, upon a ledge of the Gee’s Point rocks.*

*My father had almost the same experience, save that he was two days making the trip from New York in a sloop.

Here is the picture as Latrobe has drawn it: "A narrow, steep and ill-conditioned cart-road led to the plain above, with the east front of Fort Clinton on the right, and on the left a precipice with trees, wherever they found root among the rocks." Oh! for "a power plant" to assist the lad in this, his labored effort to get his belongings to some point of security on the plateau above. Little then, I may venture to say, did Latrobe care as to "what destruction of nature's handiwork" such power plant might entail or "what obstruction to any natural outlook it might offer" (a sinister observation, is it not?).

I wonder if in his dreams that night the young man had visions of a monument he was at a later day to design, in memory of Kosciusko, or of the gold medal to be awarded the successful competitor. More than all could he then have surmised that the site of this monument would be determined as the salient of Old Fort Clinton, where he had hidden his trunk that very day.*

Latrobe in his memoirs says: "That I soon discovered that it was not those who excelled in mathematics that maintained the same positions in the drawing academy, but here, as elsewhere, I found that patience and determined will enable art to keep close on the heels of science, even though they did not equal it in the race."

Take the accompanying sketch, "A Pinch of Snuff,"† for example, and see how admirably the point of an assumed discussion has been answered. Let us suppose that these old gentlemen, Fessenden among the number (as I remember him), are engaged in an animated conversation—the subject, "The

*This monument was erected by the Corps of Cadets in 1829, after the design of Cadef Latrobe, for which he received the gold medal, a silver medal going to a less successful competitor.

†In this connection I may add that the talent of Latrobe and my father led in the same direction, as will be seen by the half-tone reproduction of a pencil sketch of the latter officer, which was entered in the competition for a marble group for the east portico of the Capitol building in Washington. It was preferred by many to Persico's design, but the young officer not being able to mold or use the chisel, his design was not accepted. Young Hercules has broken the fetters, subdued the Nemean lion (Old England), and America stands exultingly ready to affix her signature to the scroll, "The Declaration of Independence." The design is beautiful and the conception admirable.

†It was one of the accomplishments of the artist to be able to so impress his mind with the semblance of a person or object, that at a later period, in the quiet of his room, he could reproduce, in sketchy style, exact likenesses. He preferred this to a regular sitting of the subject, as he has often told me that the salient or characteristic features remained with him and the likeness was rendered more determinedly than where such impressions were weakened with minor details. We will call this sketch "A Pinch of Snuff," and assume that the argument of the picture turns on "the use of drawing," the query being answered by the sketch itself.



MARBLE GROUP DESIGNED FOR THE CAPITOL.

By Lieut. John Farley, U. S. A. (1829).

advantages or use of drawing," the discussion ending pacifically with a pinch of snuff. The sketch (as was my father's wont) was probably made from memory upon his retirement to his chamber at night and presented the next morning at the breakfast table to the astonished disputants.

Likeness making, as we know, is more readily acquired by mediocre talent than art quality, and many conscientious, painstaking painters can do good likeness work without a ray of art.

Still it is always far more satisfactory, where off-hand sketching is attempted, to find the sketch bearing striking resemblances to the persons or objects copied than where no such attempt is made.

COLONEL THAYER.

Whatever may have been done for the graduates of Thayer's day, to whom I have referred, the credit belongs not alone to the instructors of the several subjects taught, and whatever of excellence the cadet may have evidenced in drawing was, in great measure, due to Colonel Thayer and the Academic Board as well as to Mr. Gimbrede.

Colonel Thayer was, as Latrobe describes him, "a grave, dignified and accomplished man, of soldierly carriage and refined and courteous manner, perhaps verging on preciseness, the firmness of whose rule in a position of great responsibility (comparatively speaking, very great in those days) was tempered by kindness, and commended to all, however affected, by the conviction of absolute justice."

It has been stated, in order to correct erroneous impressions, that pressing family reasons, after the death of Latrobe's father, in 1820, compelled him to resign his cadetship at West Point and to enter upon the study of law with his father's friend, General Robert Goodloe Harper—within five months of the graduation of his class—and that he has ever since regretted the prematurity of this step. The Academic Board endeavored to induce him to remain and graduate with his class, but from a high sense of duty to his mother and her young children he



"A PINCH OF SNUFF."
(Farley, 1825.)

was compelled, under his then way of thinking, to decline to accede to the wishes of others, and there now only remains for him, in answer to the too frequent query, "Why did you not graduate?" the certificate of the Academic Board of which Colonel Sylvanus Thayer was the president. This shows that "He (Cadet Latrobe) has uniformly distinguished himself for good conduct, fine talents and diligent application to his studies; that at the last examination he obtained the first honors and first standing in a very numerous class of his fellow students."

Latrobe in after life became greatly distinguished and much honored in his profession, that of the law. For twenty years he was president of the Maryland Historical Society.

He died in Baltimore, Md., on September 11, 1891, at the advanced age of eighty-nine years.

With the death of Thomas Gimbrede, December 25, 1832, we find his successor to have been Charles R. Leslie, a distinguished artist of England, appointed on March 2, 1833, and who, after a brief service of about thirteen months, resigned from the Academy because of what he considered a too restricted field for the true artist. This was on April 15, 1834.

PROFESSOR WEIR.

Robert W. Weir succeeded Leslie, on May 8, 1834, as Teacher of Drawing and was made professor in this subject on August 8, 1846.

His fame as an artist is so well established as to need no encomium at my hands, though from affection and esteem for this man I shall have much to say.

One of the greatest difficulties the cadet labored under in the advanced course (water-color painting), for which not more than eighty or one hundred hours of the year were allotted, lay in this. The professor took charge of this portion of the course himself, and he was such a skilful and accomplished artist that he could neither realize nor appreciate how little the second class, as a whole, understood the subject or were able to profit by it, nor had he any desire to trespass upon the short time allotted by the Academic Board for practice with the brush, by lectures or verbal instruction. It was, therefore, only in rare instances that the cadet carried away with him after graduation a knowledge of water-color painting at all comparable with that he had acquired in the mechanical portion of the course of drawing or in the various departments of science.

Furthermore, in all other subjects the cadets in each section studied for hours in their rooms and came to the section room *to inform* the instructor what they knew; whereas, in the drawing course all the cadets of a class without any attempted preparation came to the drawing academy *to get out of* the instructor all that *he knew*, and failing to derive all the information desired in this way, they derided the system of instruction while themselves largely at fault. No argument, however, is entirely one sided, and the present accomplished draftsman and Principal Assistant in Drawing, Capt. Charles B. Hagadorn, Twenty-third Infantry, told me only recently that it was a great regret to him personally that he had not had the added advantage of the water-color course of instruction of earlier days. He referred more particularly, as I understood him, to the outdoor sketching with light washes of water-color, in which work Eastman,* Poland, Kent, Elderkin, Du Pont, Farquhar, O'Rorke, Babbitt and myself, all of the 1861 classes, were particularly interested. It was a newly introduced portion of the course under the five-year system and was later discontinued for want of time. This was a most unfortunate set-back for the draftsmen of a class who showed natural inclination for the work, as there was so much that was really artistic about the sketches that they were asked for by Russian officers visiting the Academy, and sent to Russia that the cadet students in that country might profit by them.

After Robert Weir's retirement from the professorship of drawing, July 25, 1876, he resided in New York City and until his death on May 1, 1889. He had served for forty-two years at the Military Academy, first as Senior Instructor and then as Professor of Drawing. Thomas Gimbrede *before him*—thirteen years—and Charles W. Larned, *after him*—thirty-one years. The men now living, to whom this paper is more especially addressed, were therefore instructed by one or other of these whose incumbency covered a period of eighty-six years.

The principal works of art of Professor Weir were produced in his studio at West Point, and it was his delight to entertain his friends while at his work. His "Angel Receiving St. Peter," and his "Christ and Nicodemus" were done when he was pursuing his studies in Florence and Rome. A more charming

*After Weir and Whistler.

No officer of our service stood so high in the esteem of the army as an artist as Robert L. Eastman, and his father before him, Seth Eastman, was also a most talented artist.

and accomplished gentleman I have rarely met, and those of the present day will find in his son, Julien, a very counterpart of the father.

In 1828 the degree of N.A. was bestowed upon him, and on May 8, 1834, he was appointed Teacher of Drawing at West Point, succeeding C. R. Leslie.

Weir's historical works* insured for him great prominence in that branch of his profession as well as did his "still life paintings," another branch. In this connection I will not spare myself, and before enumerating Weir's principal works, let me tell of an experience had of my own, in following a "still life" picture of the professor's. It was a small canvas—"The View up the River" (Hudson River looking northward from West Point)—one of his favorite subjects. It was valued at \$200. I mention this as the gauge set for those who ordered similar paintings from him. I slavishly copied this picture in its every detail, and connived with the wife of one of my commanding officers to pass it off as the *real thing*—as Weir's work. In fact, I was so completely enamored with my work and blind to its defects, as amateurs usually are, that it seemed to me I had found an excellent way to compensate the ever-increasing price of flour (\$17 per barrel) as well as of meat (35 cents per pound). These were "*after war prices.*"

It was arranged to place the pictures in a good light, side by side, and when our colonel arrived to "give him a stump"—let him decide which was the finest picture of the two—that of the master or that of the pupil. Usually it is one's business in writing to extol himself and his doings, but I will *in this case* give the reader a little variety. "An *enraged* rat!" A *subdued* mouse!" was the only comment.

I remember inviting Professor Weir to visit my home studio at the Point to see my first attempt in oil painting. It was a labored effort—"The Spouting Rock,"—Newport, R. I., an original sketch from nature—all rock and sky and water; a tree nowhere visible. It was a good wholesome fire screen at the best (as I now know), the spray dashing over the rocks, produced by dabbing raw cotton in white lead on the canvas—cotton, lead and all. What a wonderful process; *what skill!*

*It is not generally known that Congress appropriated \$10,000 for the "Embarkation of the Pilgrims," now and for many years placed in the Capitol rotunda in Washington City. This money was all expended in the construction of the Church of the Holy Innocents, Highland Falls, N. Y., of which Professor Weir was the architect. The church was dedicated to the memory of the deceased members of his family.



Cadet J. P. Farley (1858).

"FAME."

In the absence of my family no one had seen this work of art but Ann, the Irish cook. She alone had been invited to my studio and let into my secret. I carefully studied her expression and attitude as she stood, arms akimbo, with eyes riveted on the canvas. I shall never forget it. The bell had rung up the curtain on my first great work in oil. After a silence of several minutes, in which she appeared to be much embarrassed, she ventured an opinion, but with that uncertainty and hesitation common to those who upon entering a gallery of art have neither *seen the catalogue* nor acquainted themselves with *the price of the pictures*. "It must be a very woody country down there," she said in a husky tone. "Woody country!" I amazedly replied. "Why, Ann, do you say *that*?" "So much wood about it; all that green." Great Heavens, I thought, she has taken my ocean for a forest; my rolling billows for

"Swaying bulbil trees, for rice fields in the breeze."

And so again! Great Birnam Wood to high Dunsinane Hill had come.

After this my desire to ascertain the professor's opinion may well be imagined. "Well done," he said. "*Carmina!*" ("Go on!") as Michael Angelo would say to *his* pupil. "I am glad to see that you have taken up oil." "But, professor," I replied, "I have taken three weeks to do what you could have done in three hours." "Yes, captain," he replied, in encouraging tone, "I know; but you must not forget that what I do in three hours is the result of a life time of study." This, then, is the talisman of success in art. *Work and study*. It was not long after this that I gave the professor a sitting, and after extending my arm for hours in very unstable poise (this was "The Monkey's Game of Chess"), the professor rose in disgust from his work and exclaimed, "*It won't do, it must come out!*" "Why, what's the matter," I inquired, for there was my beautiful hand true to life; the *real thing*. "Don't you see how large it is, out of all proportion to the man," said the professor. "Yes!" I replied meekly, "and you'll have, I suppose, to get another model." The moral of all of which is, that when artists are manufacturing Adonises and Venuses out of crude material they should be careful not to put six feet extremities on five feet subjects. I retired from this situation in good order and with a conscious belief that never again would my presence as a sitter for hands or feet be required, at least, *not in that studio*.

We of the old school, all of us, remember the stereotyped and oft-repeated directions of our professor to "give more atmosphere to our paintings." Which meant in most cases the washing out of a whole week's work, this being the cadet's conception of *atmospheric* effect, and when told to "warm up" a "cold" or "crude" effort, how thoroughly comfortable the cadet made himself at the stove "killing time" while giving his work of art the further "roasting" that it deserved. The "warming up" of things in general, and paintings in particular, was probably better understood by my old comrade, Cadet Horace Porter, than perhaps by any other man, for he has said in a brochure read before the West Point Dialectic Society in 1859:

Painting now you undertake, although in fifty cases
Your instructor asks you why you will paint female faces;
When you ask what paints to use, with countenance growing sadder,
Though he sees you now are mad he tells you to get "madder."
You give your brush a dab in any color you can find,
Destroying both your piece of painting and your peace of mind.

Here again I am reminded of other things, chief among which is the privilege afforded me by the present superintendent, Col. H. L. Scott, to obtain any data desired relating to the subject of this thesis from the files of his office. He, too, from what he tells me, had his fun under the tuition of "Old Bob"—as the cadets were wont to affectionately call him. It would seem that the colonel in his youthful days was not as successful in "making dirt fly" as he is at the present time, and observing the professor "slinging paint" on his prize cadet effort, he respectfully inquired, "What does that represent, professor?" "Dirt, sir! *Dirt*," was the prompt response. Then turning to the next pupil in order of rank (not very high rank at that, I promise), the professor informed this pupil that *his rocks* were too much alike. "Oh! My! Professor," the cadet replied, "those are *not rocks*, they are *sheep*." A flock of rocks!*

The works of Professor Weir upon which rests his fame as an artist may be briefly enumerated: The Belle of the Carnival, The Bourbons' Last March, The Landing of Hendrick Hudson, The Indian Captive, Taking the Veil, Church of the Holy Innocents, The Evening of the Crucifixion, and many others of

*NOTE.—This is really not much worse than the joke that Colonel Hoxie tells upon the writer. It appears that Professor Weir had been "putting atmosphere into Cadet Hoxie's crude effort when along came the assistant professor and directed Mr. Hoxie to get up while he put some branches in his trees—the trees being the wholesome atmosphere of the professor's making, using his thumb as a stump.

great merit. Two of the professor's sons, John Ferguson and Julien Alden, both inherited their father's talent and have become distinguished artists. The latter it is my good fortune to claim as having been one of my most promising boy pupils.

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CHANGES AT WEST POINT!

Surely here is one. The Pitcher boys, "Spider" Bartlett, "Fritz" Head and Julien Weir, how *we* boys enjoyed our jaunts around West Point on those Saturday forenoons. Three artists in this group, if the instructor may have the temerity to include himself. Yes! Morris Schaff, it is all in vain. You may cry. "Stay right where you are, dear sweetheart, you are our guest to-day. *Stay where you are!*" But was it not a happy thought, that of transferring the little chapel in its entirety to a more eligible site—to the resting-place of those who worshipped within its walls?

THE WEST POINT CEMETERY.

Take heart, dear friend, no ruthless hand will be laid here, but tenderly and lovingly, as the mother her first-born babe, and when again raised—this time it will endure forever.

The little chapel appeals to all the sentiment within us, to all that relates to West Point—mothers, sisters, sweethearts and wives, you have shared the joys, the triumphs and the trials of your own cadet, no wonder you rebel against this change—there are so many memories stored up in your poor old hearts. They find expression in the words of one who, in writing me, says: "In the silent watches of the night I sometimes fancy that I hear the gay lilt of 'The Blue Danube,' and see the slim gray coats whirling round the old hall in the giddy mazes of the dance with some fair partner. There are certain tunes," she says, "that make me actually *see* West Point."

Professor Weir, in one of our walks to "Old Fort Put," told me that when designing a work of art that, waking or sleeping, his brain was filled with motley suggestions, and that at night he would rise from his bed, light his candle, and jot down some impression, save for which his dream would be lost to him forever. I wonder if in his dreams he determined which of the three sisters,* the Three Graces, as they were called, he

*The Misses De Witt, of West Point—the three most beautiful women in America.

was to select for a model in his allegorical painting, "Peace and War." (See frontispiece.)

Yes, there stands the work of our late master of art, of our dear friend, and there, in the little chapel over the chancel, it will remain, until long after we have passed away and been forgotten. It should serve the cadet as a reminder of the founder of the great military school, "First in War, First in Peace and First in the Hearts of his Countrymen," or better still, of that other one whose name is immortalized by those simple words, "Let the Confederate soldiers take with them their horses; they will need them for the coming harvest."—"Let us have peace!" One other there was who was ever present on the Sabbath-day in the cadet chapel (though the Roman Catholics claimed him for their own) and who read between the lines of Weir's allegory, "*War is Hell!*"

JAMES MCNEIL WHISTLER.

A word now for Whistler—*James A. McNeil Whistler*. How he loved West Point!

Julien Weir wrote me not long since that when he dined in London with Whistler, and told him that football had been introduced at West Point, the old gentleman was shocked beyond expression and exclaimed: "Good *God!* A West Point cadet to be kicked with the boot of a Harvard junior!"

The nearest approach in drawing to the type of cadet pupil Whistler, so Professor Weir told me, was a pupil of mine, William J. Roe, of New York, class of 1867. He stood number two in his class in drawing and could never be persuaded to take pains with the mechanical features of the course, though he was far more of an artist than Cadet Haupt, his senior in rank, and in fact, more of an artist than any of his cadet contemporaries. His career was cut short at an early day after graduating, and but for this he might, had he chosen, have become as distinguished in art as Whistler himself. Whistler, as we know, held peculiar theories on art, and was never moved by inimical criticism, of which a bountiful supply was always at hand—even John Ruskin questioned "the cockney impudence of this fellow for flinging a pot of paint in the public face and charging two hundred guineas for it." And now that I come to speak of *criticism*, what various kinds of it there are in this world; the inimical, the friendly, the rebuffing and the encouraging, and then again there is the *incompetent*. How Whistler hated the



Cadet James A. McN. Whistler, U. S. M. A. (1853).

last, and how we all detest it, and how often did he say, "None but artists should be critics."

A story, as I have it from a charming and most accomplished French lady, runs on these lines: Two American maiden ladies were visiting the Gallery of the Luxembourg (one may have been David Harum's sister, for all that I know), and being attracted by what we may call a classical work of art, they consulted the catalogue. It was a last year's catalogue given them by mistake and showed Number 333 to be "A Portrait of my Mother," by Whistler. "Well!" spoke up the younger of the two, "I have always heard that Whistler was a very queer man, but I never thought he was as queer at *that*." No. 333, *Printemps*, current year's catalogue, "Nymphs in Woods at Play," by Bouguereau. Who, let us ask, is not familiar with this gem of art—this portrait of his mother? Even the little picture within the picture, with its narrow ebony frame and gray mat, speaks the thought of the master mind, and from the grand conception of the whole there is no dissenting voice—a study in *black and gray*."

Did I say that Whistler loved West Point? Why, he simply adored it, this, his foster mother; "the one institution, as he would say, the superiority of which to everything of its kind in the world is universally admitted." West Point to him was America. "Had silicon been a gas, *madame*, I would have been a soldier."

Yet there were other things that led to Whistler's downfall in chemistry, and which the cadet himself knew had had very prejudicial effect.

"Go to your room, Mr. Whistler, and brush your hair," were the not infrequent instructions of Lieut. Caleb Huse. This officer's dignity was time and again outraged by the free and easy manner in which Mr. Whistler combed his raven locks in the section room with his extended fingers. So the blowing up and burning up of the steamer *Henry Clay* was the immediate and not indirect cause of Whistler's not becoming an officer of the United States Army and food for common powder. Professor Bailey, like his successor, "Old Dad Kendrick," of the Department of Chemistry, never would have "found deficient" any cadet after a three years' term at the Academy, but the *Henry Clay* accident determined Professor Bailey's absence from all academic duties, and the misplaced switch turned Caleb

Huse on Whistler and made an artist of him. So it goes in this world, and the song once again is realized:

Some people know all things;
All people know some things;
But all people do not know all things.

The little knowledge I possess of Whistler is much restricted, and the function attendant upon the unveiling of the Memorial at West Point being delayed, from which I had expected to gather much information, I must content myself by simply saying that a gentleman of Detroit, Mich., who has the largest collection of Whistler's works in the world, not even excepting that of the King of England, who as Prince of Wales was a warm friend of the artist, is the one who contributed largely to the honor of the Academy and the memory of his friend by the part taken in this graceful tribute to the memory of J. A. McNeil Whistler.*

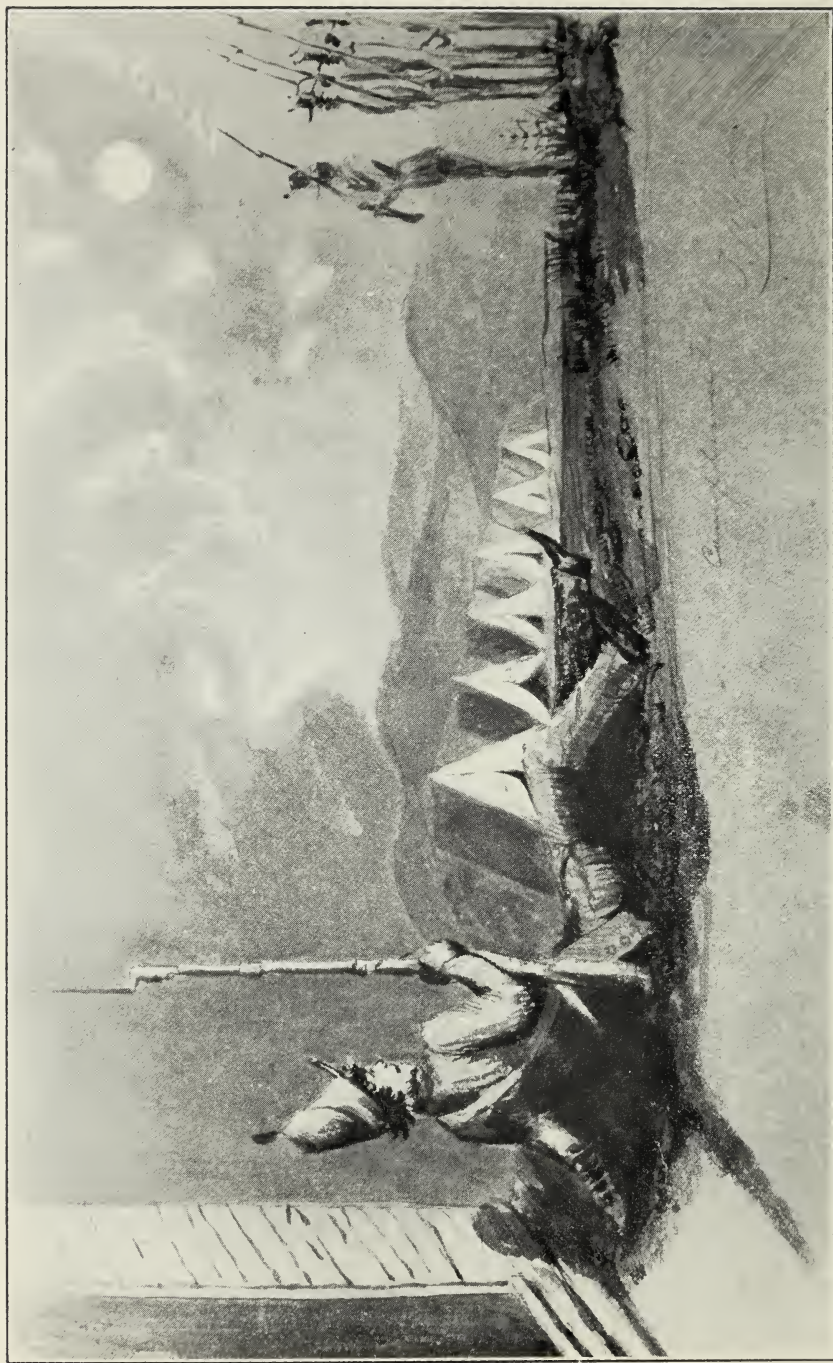
The following sketch of Whistler has been furnished at the writer's request by Colonel Larned:

You have asked me to write a concise appreciation of that insurgent genius, J. A. McNeil Whistler, which shall undertake to express the leading characteristics of his art and disposition. Had you not made it a matter of personal friendship I should insist upon my refusal to undertake that for which I am so ill qualified. Neither by personal contact nor by a fair acquaintance with his work at first hand am I equipped for such an undertaking, which demands more than in any similar case a profound degree of art culture in addition to these primary essentials. I am not able, even, as are his contemporaries at West Point, to describe the cadet aspect of his many-sided personality, and must, therefore, feel that anything I undertake to put on paper will be quite barren of value from every point of view. Besides, Whistler defies definition and eludes classification. Both as man and artist he is in a category by himself. His own trademark—the mocking fantastic butterfly which hovers ironically about his signature, or in place of it—is his own defiance to the critic and biographer. However, if on account of my position as head of that department of the Academy in whose course he was so easily first,

*WEST POINT, N. Y., October 26th.—In the presence of a large assemblage of invited guests and officers and ladies of the post, a tablet in memory of J. McNeil Whistler, the artist, was unveiled in the Library Building of the United States Military Academy to-day. The tablet was the gift of the Copley Society of Boston and a few friends, and was designed by Augustus St. Gaudens.

In a letter to Colonel Scott, Superintendent of the Academy, Holker Abbott, President of the Copley Society, said:

"Whistler's training at West Point was to him the most precious possession, and remained an inspiring influence throughout his career. While he eventually devoted his life to the pursuit of the arts of peace, he constantly cherished his early experience at the academy. With deep respect for his affectionate regard for the principles of West Point, the society believes that no more fitting place could be found in which to erect its modest testimonial.



Sketch by Cadet Whistler recently found in a scrap-book belonging to the late Gen. Absalom Baird, Inspector-General, U.S.A.

you are willing to accept my conceptions of Whistler at my own valuation, here they are:

Whistler delighted in fostering the mystification that his eccentricities accumulated about his personality and, notably, in thickening the fog that obscures his birthplace, which he located in St. Petersburg, although it is variously recorded as at Baltimore, Stonington and Lowell, and is probably somewhere in America—Eddy, in his recollections, says Lowell. Unfortunately, therefore, it is as an eccentric or a fantastic cynic that the world knows and esteems the man, whereas this envelope was only a sort of garment in which he concealed a character of penetrating intelligence and an art genius of the first order.

It must be borne in mind that he was the arch rebel of protest; the sworn foe of convention in art. All that quality of density in art perception, that sordid materialism and stupid adherence to custom which is expressed by "Philistinism" was his horror and pet aversion; and, as his own genius was subtle, delicate and original, he suffered to the full the slings and arrows which the scorn of the Philistine public flung at his work. He found refuge in a bitter cynicism, and barricaded himself behind a screen of sardonic *bizarrie* from which he shot his blow-pipe feathers of ironical wit. Of course the world replied with stones and rotten eggs, and for years Whistler was mobbed, in a critical sense, by a crowd of conventionalists in whose hide his barbs rankled and who would gladly have ridden him, tarred and feathered, on the rail of art outlawry.

But under this whimsical guise there was ever an inner Whistler of earnest and great convictions—a man of the finest art fiber and creative powers—who never trifled about his vocation, and whose convictions were serious and reverential for the canons of great accomplishment. Although free and unconventional in his inspiration, he was no destroyer of landmarks; and if in some ways an iconoclast, he was by no means a bull in a china shop. The man who would say, "The story of the beautiful is already complete, hewn in the marble of the Parthenon and broidered with the birds upon the fan of Hokusai," was not a scoffer at that which is rightly established; but the sensitiveness and clear art-perception that made him prostrate himself before the truly great rendered him intolerant of the mediocre and pretentious.

Whistler as an artist was great in so many ways that he astonishes the critic. He was supreme as a draftsman, a colorist, a designer, an interpreter, a decorator, a technician. His work has that quality of greatness that demands second thought and reflection for its full appreciation. His mastery is not always obvious. He made no appeal through the pyrotechnics of art or the cleverness of technique. His control of the brush was never left to show on the canvas by stroke work. He said that a work of art is complete only when every trace of the method by which it was produced has been obliterated, and he seems carefully to have obliterated all trace of his modus, so that the secret of his wonderful achievement will always remain as mysterious as the psychology of the man. Notwithstanding this, Whistler never made a mystery of his technique, and was singularly simple and explicit in his enunciation of correct methods of work. His great portraits, besides being marvels of execution in that quality which artists recognize and revere in men like Velasquez and Rembrandt, are extraordinary in psychic interpretation. His phantasies—such as "The Balcony," which he classes

as an "arrangement in Flesh Color and Green"; and the "Battersea Bridge," a "Nocturne in Silver and Gold"—possess the finest imaginative subtlety.

In all his work resides that great attribute of genius which penetrates to the *Essential* and expresses it with the highest economy of medium. This power shines pre-eminently in his many etchings, which stand without apology by those of Rembrandt. His clearness of artistic vision is shown by his proclamation of the supreme quality of Japanese art, long before it became a Western fad, or even was fully appreciated by the art world of the Occident. In consequence, he is asserted to have been greatly influenced by Japan, but, if so, it was only sympathetically, and in a totally independent expression.

Contrary to common acceptance Whistler, instead of looking upon his military career at West Point with aversion, preserved to the last a warm affection for the institution, the highest appreciation of the character of its graduates, and a sincere regret that his career there was not completed. In our correspondence regarding him, Mr. Joseph Pennell, who is preparing his biography, assures me that he was frequent and tender in his allusions to the American War School; and others who were intimate with him have made the same statements regarding his affectionate loyalty to West Point and its alumni. Two of his drawings as a cadet remain to attest his pre-eminence in the language of form; and although "silicon" is not "a gas," and thereby West Point was not privileged to endow a great genius with its certificate of proficiency in the arts and sciences of war, Whistler was long enough under its tuition and discipline to have received a quantum of mental training and character molding which must very greatly have influenced his development. That clearness of perception, virility and tenacity which rendered him formidable in controversy, as well as the dislike of cant and affectation which was his passion, must have acquired increased effectiveness from the transforming experiences of plebe and yearling life. Let us rejoice for the sake of art and the world that silicon is not a gas; but let us also rejoice that J. A. McNeil Whistler did not discover the fact until he had been for nearly three years a West Point cadet; for, had his chemistry been better and had the army claimed him, it is not likely that his name would have survived with that of Grant, Lee, and the West Pointers of history. It is sufficient to feel that the Academy had some considerable part and lot in the molding of a great genius who never feared to stand on his hind legs and fight with all his wit the stupid old world of Philistine convention and prejudice until at last it was content to come and eat out of his hand. The simple and graceful mural tablet on the wall of the east vestibule of the Library testifies to the pride which West Point takes in its association with a courageous fighter and a brilliant intelligence to whose forming it had contributed, and from whom it received the tribute of affection and unqualified admiration.

And now a word for Col. JAMES G. BENTON, scientist, artist and soldier.

Judged by the first standard—an authority on Ordnance and Gunnery; by the second—a man so clever with his pencil and pen that his offhand sketches were most beautiful and thor-

oughly original, and as he often said, his powers as a caricaturist had gotten him into such hot water with his friends that he had to desist from such practice. He was the honor man in his class at West Point in drawing, and possessed of the highest sense of humor. What I was about to relate, however, is this: Benton was more than a soldier—he was a hero, and as real heroes go, an unrequited one. Capt. Howard Stockton, formerly of the Ordnance Department (1863-72), writes as follows under date of April 12, 1906. His letter has been burned into my memory (destroyed in the San Francisco fire some days after its receipt).

You are right when you speak of Benton as a hero; he surely was one.

I was not with him when he ran into the temporary magazine (the old penitentiary) and extinguished the fire of the burning boxes of field ammunition. At that time I was not on duty at the post, but at a later day, when a frame building at the arsenal was on fire, and contained 5000 barrels of gunpowder, I was about to run away, but seeing the major come up with a ladder and mount the roof, I joined him. We tore off the roof boards which were on fire and in this way saved the building and its contents. I have never forgotten Benton's remarks at the time: "*Stockton*," he said, "*it takes a long time to burn through a powder barrel.*"

And now, before we part with Benton, a word more about that accident of November 3, 1863, which resulted in the loss of two lives, and save for the presence of mind and prompt action of the commanding officer of the arsenal, the results might have been far-reaching and deplorable. The official records show that Major Benton at a late hour in the afternoon of that day ran from his office toward the temporary storehouse—the old penitentiary building, immediately adjoining the arsenal, and entered it. This immense structure was stocked with fixed and fused field-gun ammunition throughout its several stories, and smoke was to be seen issuing from its windows.

He forced open the metal doors, which had closed upon two operatives who were running about in wild delirium and in flames, stamped out the fire of the burning tow from the open boxes of ammunition, and heedless of the burns upon his hands, extinguished the flames on the frayed ends of the rope handles of many boxes until water was brought by one or two others who were encouraged by his example, thus saving the arsenal from destruction and probably the greater part of the city of Washington from a similar fate. The operatives expired in mortal agony and suffering some hours later.

JANUARY.



A BILL THAT CAN'T PASS.



COL. BEN. BEALL, OF THE DRAGOONS, TAKING A NAP AT WEST POINT HOP—1858 (*Benton*).

This is as much akin as anything can be to carrying off wounded comrades from the field of battle under the fire of a savage foe. Where is the brevet for gallantry, the double, triple brevet, for these heroic deeds? Where is the medal of honor? Is it yet too late? Stockton lives, *the record lives*, and his widow lives. I asked Benton, when he was my commanding officer at a later day, how he had the nerve to perform that heroic act. His reply, "Well, I guess it was a case of self-preservation. I did it to save my family, the arsenal, and the city—all would have been destroyed had I failed." *

I should be very remiss in speaking of the officers of our service who were gifted with artistic talent if I neglected to invite special attention to the services of Brig.-Gen. Seth Eastman, who was for seven years the principal assistant professor of drawing under Professor Weir, and who was also the author of professional works on topography and perspective drawing. He was offered positions in civil life in several of our colleges as professor of drawing, but declined to leave the service. His oil paintings have been freely distributed to his friends in the army, and his as well as his son's ability in the artistic line has been thoroughly recognized.

Probably no officer of our army rendered such service in the Department of Drawing under the Weir régime as did Richard Smith, familiarly known as "Dick Smith," who served at the Military Academy under Professor Weir's administration. He was induced to resign, and accept the professorship of mathematics and drawing at another famous school; he re-entered the service during the Civil War and became brigadier-general of volunteers, and again resigned to accept the presidency of the Girard College, at Philadelphia, and after that a professorship of mathematics of the Naval Academy, where he ultimately became the professor of drawing. He was the author of several text-books on drawing and topography.

*I have been both surprised and delighted to find upon the occasion of my late visit to the family of Colonel Benton a very large number of his beautiful etchings and paintings, together with several books of caricature which he has left, and which it was never my good fortune to have seen before. When sent abroad, in 1873, with the Ordnance Commission, consisting of Colonels Laidley, Benton and Crispin, he made a large number of most effective sketches in traveling through Europe. "The Bill That Will Not Pass" is also an effective sketch of Cadet William Smith, made by Colonel Benton when he was a member of the Academic Board at West Point. The rough sketch, of Colonel Beall, of the Dragoons (1858), is expressive of this gentleman's enjoyment of a cadet hop; this may also be entertaining for the few, yet remaining with us, who were acquainted with the colonel and his predilections. The pen-and-ink of "The Fenian Scare" illustrate Benton's skill as a cartoonist. He was equally successful in water-color to which, however, the ordinary process plates would fail to do justice.

There are many others I could mention, had not their names escaped my aged memory, who were skilled in the use of the pencil and brush. POLAND, of the May Class of 1861, was very successful in oil, particularly as a marine painter. PENNINGTON, of the Class of 1860, continues his practice as a source of amusement in these his days of retirement. GREENOUGH, of the Class of 1865, also, I am told, does very good work in water-



THE FENIAN SCARE (Benton).

colors. CHURCHILL, deceased, of the same class, after resigning from the army, kept up his practice, with what success I do not know, but he gave fair promise when at the Academy. WHIPPLE (C. W.), of the Ordnance, is a caricaturist and evidenced considerable talent, but neither Whipple nor DERBY (John Phoenix) were to be compared with Benton who, as a caricaturist, was by far the *facile princeps* of the army. Benton's series of arsenal views made with the pen, when on a tour of inspection, were most admirable.

SEYMOUR (Truman), the honor man of his class in drawing, was very skilful with the brush, and in his days of retirement and illness derived great comfort from his talent. Residing in Florence, Italy, he wrote me occasionally during his intervals of ease, for, he says, "Although I have been tapped twenty-one times, I get all the pleasure out of life and the things around me that I can," and in his last letter, written (Florence, August 27, 1890) a few weeks before his death, I could see that the end was near at hand. "You," he says, "who are comparatively young and strong, will, I trust, enjoy many long years of honor and usefulness, and arrive at my age without any of these infirmities. And so with my best wishes and lasting regards I will say good-by, and God bless you!"

God be with you, brave soldier! You wore the laurel thick upon you—no man had more brevets bestowed upon him for gallantry in action, in Mexico as well as in the Civil War, than this man with whom I had the good fortune to serve as aide-de-camp. He fell severely wounded in the assault upon Fort Wagner, S. C., July 18, 1863, while leading his command under a deadly fire in which one-half of his whole command were sacrificed.

Speaking here of South Carolina reminds me of another whom I had almost forgotten—LOOMIS LANGDON, a man as ready with the pen as with the brush, a peculiarity I have often noticed in others. Seymour was also given that way, and we all know the scrape the latter got into just after Butler had failed to capture Fort Fisher. The very day Terry captured the fort there appeared in the *New York Times* or *Tribune* a long article signed by Seymour, who commanded the Sixth Army Corps, Army of the Potomac, telling us why the fort could never be captured. When Seymour learned of his error he exclaimed, "*That's the last; no more writing for me!*" And now, for those who know Langdon and those who do not, I may relate a few incidents to show how he beguiled his time during the operations in South Carolina, 1863.

He commanded the left of the line of batteries in the action of July 10, 1863, the right of the line falling to my lot—we had both volunteered for this service on that day. To encourage his men and keep up their spirits before going into action he opened his valise at early dawn (we had been standing to our guns since midnight), and taking out his razor and boiled shirt, made his toilet before the men, joking all the while, and got



Le Cadet
 Drawn by Cadet George H. Dury at West Point, 1842.
 Afterward known as John Phoenix a famous writer.

them into the good humor that he desired, making them believe that they were on a picnic and not a funereal business. On another occasion at Beaufort, where he managed the camp of the two light batteries of the First Artillery, he learned that he could obtain a swell coach which had been abandoned by the inhabitants of that beautiful little town. The whites had fled precipitately upon the arrival of the "Yanks," leaving everything in the hands of the negroes. Some dozen or more of the mansions of this town were fine structures, and most luxuriously furnished. As the "Johnnies" walked out, the "Yanks" walked in and helped themselves to everything in sight. It was at this juncture that the art in the army—the artist in Langdon—began to "break out." He secreted the coach he had captured, in a large hospital tent, for a few days, from prying eyes, mixed his own pigments and put in practice some of the suggestions of Robert Weir, who had brought Langdon out at the head of his class in drawing, in 1854. The coach emerged one sunny morning (here I shall let Langdon tell his own story), "the wheels, pole and other parts of the running gear a fiery red, while the body was a sickly green, the whole glistening with a thick coat of varnish (don't tell us, after this, that the course of drawing at the Military Academy serves no useful purpose).

"The horses were hitched in, driver mounted on the box, and the four ranking officers drew near to enter and take the first ride to town.

"Employed by the officers' mess, as valets, were two young colored gentlemen about eighteen years of age, named 'London' and 'Jeff.' The former was of rather a somber temperament; but Jeff was cheerful and spry, and graceful withal as a monkey.

"Behind the carriage was a small platform, which had suggested the propriety of having a footman to give tone to the equipage.

"For over a week 'Jeff' had been secretly drilled and equipped for this conspicuous position (the artist in Langdon further evidencing itself). A close-fitting swallow-tailed coat of brilliant scarlet was set off with gilt buttons and velvet trimmings. A pair of sky-blue government breeches encased his legs to just below the knee, where they ended under the clasp of plated knee buckles, the rest of the legs being clad in coarse, gray woolen stockings.

"A white 'plug' hat, with fashionable half-mourning to establish a claim to respectability, surmounted his black face and he wore the conventional Berlin gloves. 'Jeff' had an unpleasant way of never being able to stand with his knees and heels touching at the same time, and when embarrassed, rather gave the preference to the knees. But as a footman, he was on the whole a success."

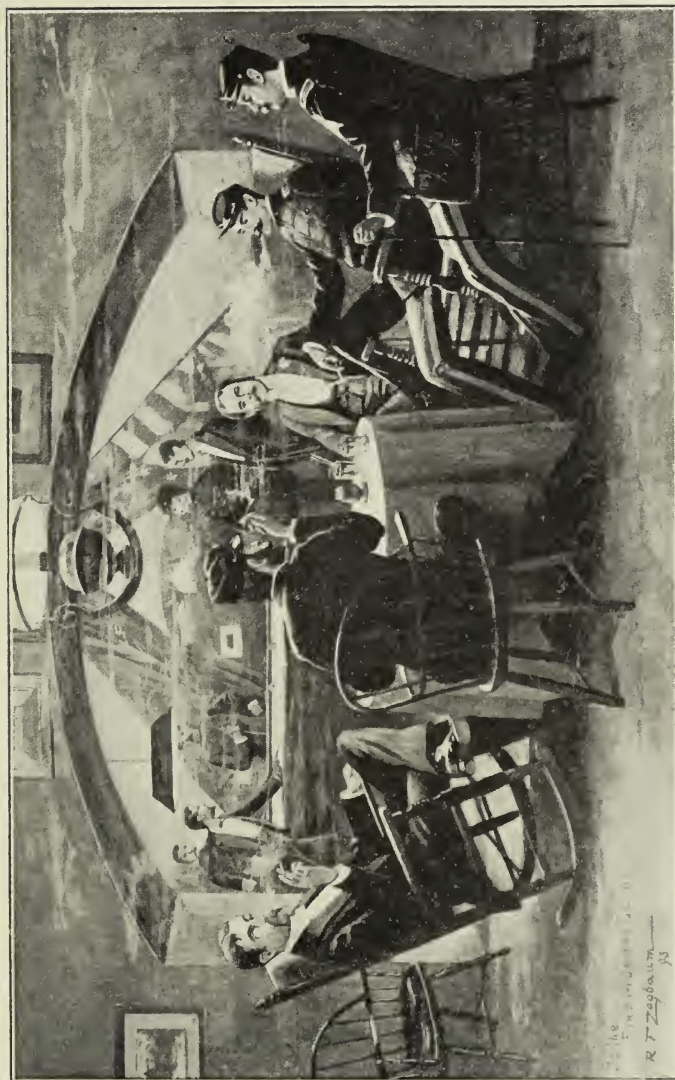
I must halt right here, as Langdon tells his own story in Haskin's "History of the First Artillery," though he probably has not mentioned that he succeeded so much better in water-colors than in oil (as above described), that after retiring from active service as a brigadier-general, U. S. A., he attended the Art School of London to brush up his natural but uncultivated talent for art. From all this, it will be seen that I am reserving what more I have to say on "Art in the Army" for a further effort—"a forecast" rather than "a retrospect." More perhaps about methods than men.

There were non-graduates, as well, who were clever with pen, pencil and brush. Of these the writer can only remember two—the late Col. Arthur Tracy Lee (1838-79), formerly of the Eighth Infantry, and Col. Herbert Pelham Curtis (1862-92), of the Judge Advocates' Department.

Colonel Lee was a veteran of the Florida, Mexican and Civil Wars a charming *raconteur*, whose "Army Ballads" (1871), a modest little volume illustrated from his pencil, is a graceful tribute to incidents of service in the Old Army. He made some beautiful sketches of the Old Mission, the Alamo, etc., in Texas. Colonel Curtis, an officer of a later date, was noted for his artistic ability, and left behind him some excellent examples of his work in water-color and oil, painted in the intervals of official cares.

Among the military artistic contributions to the Fort Monroe Club, and which have been assigned a conspicuous place on its casemated walls, are several original and very striking sketches by Zogbaum, Remington and Nast—artists like Messonier and Detaille of the French Army. These men inspired our soldiers by their bold military sketches, and have greatly aided the army by their timely caricatures and cartoons which have appeared from time to time in magazines and other periodicals.

No thesis on the subject selected would be quite complete if confined simply to a discussion of the compositions and characteristics of those who are, or were, the wearers of the shoulder

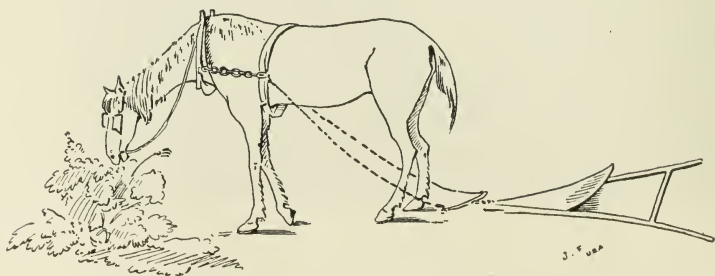


"HOW,"
(After sketch presented to Fort Monroe Club by the Artist R. Zogbaum.)

strap, and who at odd intervals laid aside the sword in favor of the brush or pen.

They were but amateurs, while those of whom I now speak on more than one occasion reversed this process, and served with the colors on fields of contest. Their contributions to the Fort Monroe Club are therefore an evidence of reciprocity for the hospitality enjoyed by them as guests. Their fame, so well established, needs no word of mine, though metaphorically speaking, as an old friend and comrade would have it, I might say that the bare mention of their names on this page throws a beam of light upon it, as does the ray of sunshine across a field strewn with leaves of laurel.

And now while referring to this army club, this casemate of an old-time fortress, with its artists' proofs, let me further add that there has been received by the club within a very few days, and conspicuously placed, an artist proof steel engraving of King Edward VII, after Sir Luke Fildes' celebrated picture of his Majesty, which hangs in the Royal Artillery Mess at Woolwich. I was forcibly reminded, when I viewed it, of the visit of the Prince of Wales to West Point in the autumn of 1860. On that day he was mounted on a high-spirited horse, and with hat in hand acknowledged the salute of the Cadet Battalion most gracefully as he passed the colors. With these reflections in mind, it appears quite appropriate to cite this evidence of the mutual good-will and kindly spirit at this hour (the Tri-Centennial year of the Jamestown settlement), the picture being presented by the officers of the Royal Artillery, some of whom were guests of the Fort Monroe Club during the season just passed.



Retired; while in harness, on thistles to bait.

CAN THE ACCURACY LIFE OF THE THIRTY-CALIBER MODEL 1903 RIFLE BE PROLONGED BY A CHANGE IN THE FORM OF RIFLING AND THE USE OF A BULLET OF DIFFERENT COMPOSITION?

BY LIEUT.-COLONEL WM. F. SPICER, U.S.M.C., RETIRED.



IT seems a little late to ask this question, when the service is supplied with, probably, the finest rifle ever made, and our Ordnance Department is constantly making improvements in the quality of the steel in the barrel, the powder, and with the present velocity, accuracy and penetration has perhaps touched the high-water mark of perfection and efficiency in small arms.

That our rifles are accurate to a nicety there can be no doubt when we consider the high scores made at record practice.

They are certainly more accurate than is the holding on the mark of the average shooter; but how about their continued accuracy—the “life” of the modern weapon?

An article by Major Brown, of the Third Cavalry, in the May-June number of the *JOURNAL*, on experimental firing with the Model 1903 rifle, is most interesting and has stirred the undersigned to submit for criticism, with a hope of inviting discussion on the subject, a theory that the form (type) of rifling and erosion of the bore are intimately related.

Major Brown's experience, after seven months' experimental firing, puts the life of the rifle for extreme accuracy at from 1000 to 1500 rounds, a somewhat less number of rounds than does the test reported in Appendix III to the Report of Chief of Ordnance for 1905, which places it at 2000 rounds, after which the arm becomes “unsuitable for accurate target work.”

So far as the writer knows, this difference in results may have been due to a difference in the ammunition used, but even so high a number as 2000 rounds does not altogether stagger the theory as to rifling.

A life of accuracy of from 1000 to 1500 rounds, as above quoted, would be a sufficiently long life, perhaps, for even the demands of a protracted campaign, if the arm were used only for hostile shots, but we must consider the great amount of target practice necessary as a preparation of the soldier for warfare (at least 180 or 190 shots a year for one who is an average shot. In the case of recruits, or should conditions be unfavorable, the "preliminary shots" alone may add greatly to this number), and should war break out at about the time when the greater part of the arms in service have been in use for several years, and there should not be time enough in which to call them in and issue new ones, the men must go into action with arms that are already falling behind in their most essential quality, just at the critical moment (and hostilities often begin before a declaration of war), for they will have been fired in the course of, say, four years of target practice alone, at least 760 times.

Adding to this the practice in collective fire prescribed by paragraph 143, firing regulations, it would seem to be a conservative estimate if the number of shots fired in four years is put at nearer 1000 or more, and although the arms will still be "serviceable" for the requirements of battle, yet they will not be in their best condition.

Considering, therefore, the amount of erosion (said to be first seen in the form of so-called scales) found in the bore of the Model 1903 rifle, the type of the rifling, the composition of the projectile and its covering, the question occurs to the mind: Does the bullet fill the rifling to the bottom of the grooves absolutely and completely to the very last thousandth of the inch and keep it so filled throughout the length of the base, maintaining a perfectly gas-tight fit?

I think it possible that there may be grounds for doubt.

That the jacketed bullet does upset and does take the rifling more or less completely, and follows the twist satisfactorily, may be easily demonstrated by firing a bullet measuring 0.305 inch through a barrel that measures 0.308 inch and even 0.309 inch.

Such an arm is good enough for hunting purposes and is accurate at short and medium ranges—for a while.

This is the case with some of our high-power sporting rifles, and it is hardly necessary to allude to the short life of such an arm, due to erosion of the bore by reason of the loosely-fitting bullet.

The experience of several experts, both in the service and out,

with various high-power rifles (and the writer recalls more particularly Lieut. Townsend Whelen's articles written on this subject), which if rightly quoted, goes to prove that the barrel in which there is a gas-tight fit, will outlast that through which more loosely-fitting bullets are fired. Hence, a suggestion that strengthens the idea that type of rifling has much to do with erosion.

But the service rifle should be the most perfect instrument of its kind and should far outlast the sporting rifle, for it is important that it should be accurate at long-range work, at the beginning of an action, and it is likely to be fired a hundred times to but a few shots of the latter; yet, notwithstanding the fact that in the service rifle there is a better, a tighter, fit of the bullet in the barrel (I believe it is made 0.001 inch, or more, larger than the bore at the bottom of the grooves), the fact still remains that its life of accuracy is too short.

Whether this is due to gas-cutting, or whether the steel itself succumbs to the intense heat, regardless of fit of bullet, I am not competent to judge.

As the erosion is found to destroy the bore at the breech where the bullet has not yet filled it completely at the instant of discharge, it would seem that, if due to the former condition, the erosion must be caused largely by at least a temporary escape of gas before the bullet is upset.

The metal in the barrel is the best for the purpose that is so far known, and I believe is to be further improved, and the same may be said of the powder—also being constantly improved.

The composition of the bullet, its length, shape and temper, are the result of exhaustive study and experiment on the part of those officers who have devoted themselves to this particular department of professional work with untiring zeal, and the writer wishes, in submitting this paper, not to be interpreted as in any way questioning or criticizing the skill of such officers, but rather to be understood as seeking to prolong the accuracy life of the rifle by suggesting (even at the risk of displaying ignorance of the interior ballistics of the arm), a possible cause of erosion which seems to him to be susceptible of elimination to some extent by a departure from the present form or type of rifling and composition of the bullet.

The material composing the bullet and its jacket is the natural outcome of the small caliber, quick twist and high pressure.

All these features have undergone a radical change since

the days of lead bullets, slow twist and black powder, and yet the same form—profile—of the lands adopted for the soft bullets and slow twist is still adhered to for the hard bullet and quick twist. Why is this?

The thought occurs to one that some change in this one feature may be the one thing needed to prolong the life of the weapon, and the question arises: Does the copper jacket lend itself readily to being bent into and over the small angles at bottom and top, respectively, of the lands and thus seal the bore completely?

Copper is soft, comparatively, but when it is hammered it becomes hard and elastic and acquires some degree of brittleness.

In the case of the cupronickel jacket (itself fairly hard and elastic already) it is hammered at one blow by the force of the discharge, and hardened still more into and over the angles of the lands, and by friction receiving the impress of the lands spirally along its length in the form of channels with a cross-section giving a nearly flat surface with walls, or ridges, at about right angles to it—minute though they be.

These channels, when the bullet is upset by the discharge, are forced by the lands into the core of the bullet which, being non-elastic, does not recover and press outward by regaining its former shape, and the form of the channel cut in the jacket by the lands would, by reason of its hardened angles, tend to resist more obstinately such recovery, even if it were possible.

Now, the upsetting of the bullet is (according to my idea) accomplished by the application of the force of the discharge in a transmitted lateral, radial direction; the resistance of the driving edge of the rifling, due to the quick twist, causing this force to shorten the bullet by jamming it upon its length and making it fill the rifling; but, it is maintained, this accomplished, the radial pressure must cease to be exerted at the same initial intensity, and the remainder of the force, therefore, employed in simply pushing the bullet out the bore, and here is whereon the crux of the whole matter seems to me to hinge.

We have, behind the bullet, the gas at a tremendous pressure.

The rifling (the lands) has, by the pressure of the discharge, forced the jacket into the core of the bullet, making therein a bed for itself, the counterpart of the channel in the jacket, but the cupronickel jacket, itself elastic and made harder by the blow of the discharge and friction against the lands, has no doubt recovered slightly in the direction of its former shape, as will

all thin metals when hardened and forced out of position, witness the resizing of a shell which, in the process, must be forced into a die at great pressure that is smaller than standard size, to allow for the recovery or springing back of the metal).

Therefore, assuming that the jacket has recovered, be it never so slightly, will not the gas, at its great pressure, which is now exerted only in pushing the upset bullet that tightly fills the bore (I say tightly, though not completely), seek out the first avenue of escape and find it there between the land and the jacket, by forcing the latter back again into its bed already indented in the core, and pass out through the infinitesimal space thus opened between the jacket, top surface of lands, the angles at top and bottom corners, and so cut its way through, facilitated in this by the expansion of the barrel by the powder pressure, the indentations of the lands in the jacket acting somewhat as an elastic membrane?

The writer is aware that this hypothesis may be a very great exaggeration of what actually takes place, but submits it to illustrate his theory that the *form* of the rifling has something to do with erosion.

It may be objected that, if gas-cutting does take place, the fired bullets, on recovery, would indicate it, but to this it may be suggested that as the bullet moves with the cutting jet of gas, although with less speed, and that it is subjected to it but once, it may be, under such condition, hard enough to resist deformation for that once, while the stationary barrel is subjected to the cutting process repeatedly.

The rifling is cut with, presumably, the same angle at each side or edge of the lands.

A bullet bears against and follows the guidance of but one edge only, the driving edge.

For convenience, let us call the other the "free edge."

If the pressure, the friction, the guidance are all found on one edge only—the driving edge—of what earthly use is the other, or free edge?

What is its function?

It cannot guide the bullet, since the pressure of the latter, due to pitch of rifling and consequent rotation of the projectile on its axis, is against the driving edge only, with a strong natural tendency (also due to rotation) to lift from and lose contact with the free edge, make an opening here and permit the gas to force itself through and on to the top of the lands.

It seems fair to suppose that if a bullet, either lead or jacketed, takes the guidance of one edge only of the lands, the other edge must, in consequence, become useless and therefore superfluous.

Hence, supposing the conditions, as above outlined, to exist, namely, gas-cutting and consequent erosion of the bore through failure of the projectile to fill the bore to the bottom of the rifling at each side of the lands, and considering the fact that the driving edge only acts as the rotating force, rendering the free edge a totally negative quantity in guiding the projectile, it may be asked: Is the form of rifling that has been considered suitable for soft bullets, slow twist and black powder, still the best for the present arm?

It is believed that, in the not very distant future, something will be evolved whereby the accuracy life of the rifle will be considerably increased.

Various forms of rifling have no doubt been tried and abandoned.

The rifling in the .236 caliber Lee "Straight-pull" (in use in the navy and marine corps a few years ago) is to my mind more nearly adapted to hard bullets, and has grooves of equal width, while the lands are merely in the form of ridges.

This rifling seemed to give entire satisfaction, and the arm is exceedingly accurate up to 800 yards.

The bullet being a light one, it is not reliable at longer ranges if there is any wind.

But possibly a type of rifling with the driving edge cut on a short curve from bottom of groove to top of land (which latter is in the form of a crest with no flat surface at the top), and the free edge in the form of a long curve down to bottom of groove where the next land begins, might be worth while to experiment with, if not already tried.

This would seem to remedy the above suggested failure of the jacket to bend completely over and into the top and bottom angles of the rectangular form of land and to allow the metal of the jacket to better adapt itself to the grooves.

The hand sketch herewith submitted (in exaggerated form) will illustrate the idea.

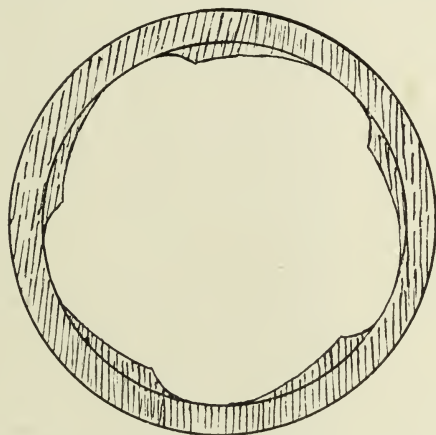
Five ridges, in place of lands, of a depth of .005 of an inch might probably obviate any tendency to strip, due to the curved surface of the driving edges.

A bullet made .003 of an inch larger than the bore at bottom

of grooves, with a harder core and with its jacket made of a thicker metal and a little softer than the cupronickel, or by the addition of "Babbit metal," might act as a proper gas-check, and by more fully sealing the bore prevent fusion of the jacket.

With the rifling well "throated" on a long taper, the pushing home into the chamber of such a cartridge would not require a very appreciable increase of force.

One of our makers of rifles, who has adopted a new form of rifling for high-power arms, goes so far as to make the extraordinary claim that a charge of ten grains smokeless powder exploded in one of his barrels did not develop sufficient pressure to expel the jacketed bullet from the barrel, but that, after three minutes by the watch, upon "carefully" opening the breech, the



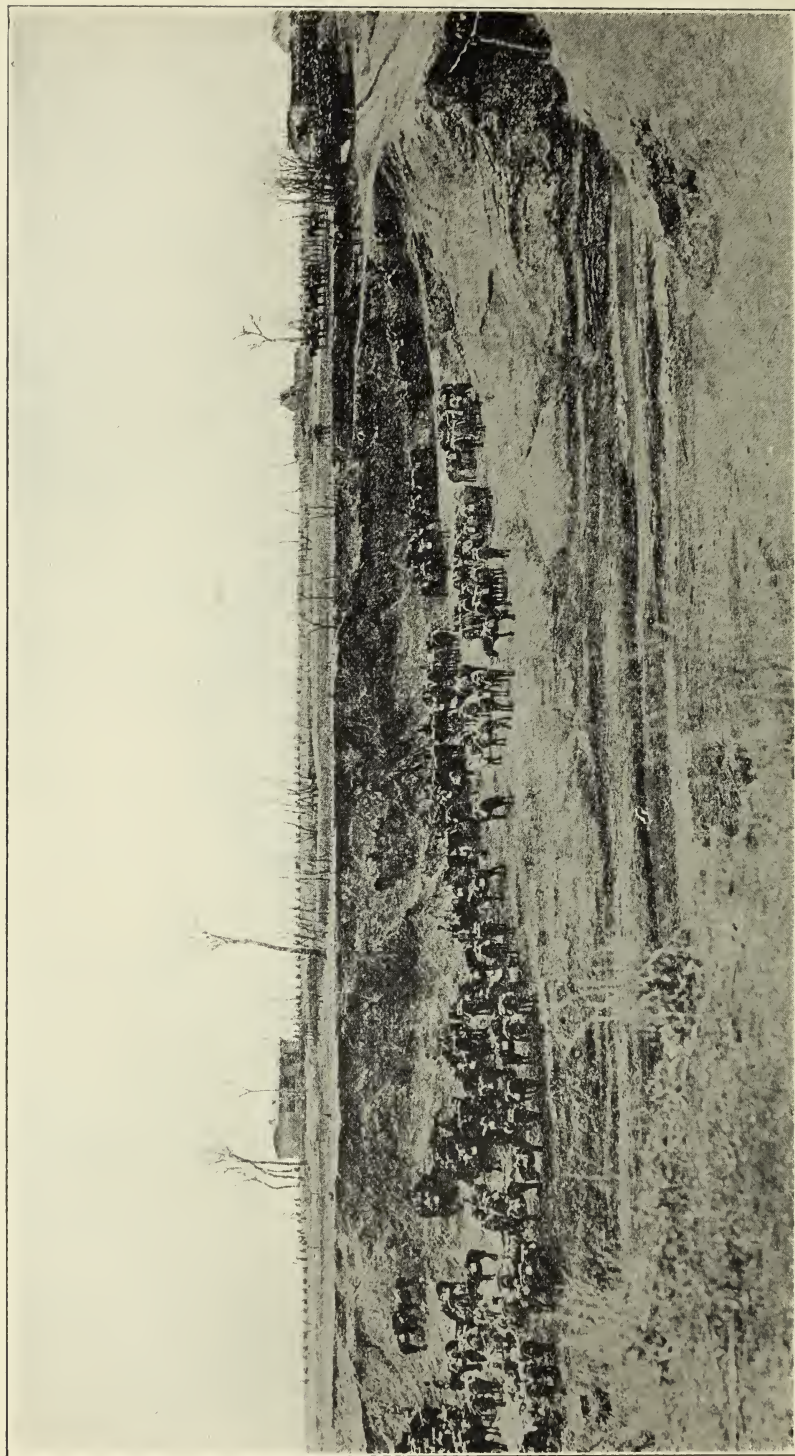
empty shell was "forcibly expelled by the gases confined in the barrel," so perfectly (he claims) does his type of rifling permit a complete sealing up of the bore by the projectile.

Be this as it may, the writer has not had an opportunity to investigate this interesting condition, but the maker is a reputable one and known to some of the members of the rifle teams at Sea Girt (as well as abroad), and no doubt has hit upon something that is perhaps of great benefit in rifling.

Some of the rifle barrels turned out by his firm are marvels of accuracy.

But whether or not the particular shape of the lands has any influence on erosion is something that the writer, for one, would very much like to have discussed by the experts, and information on this interesting subject more generally disseminated.

Lexington Mass., Nov. 20, 1907.

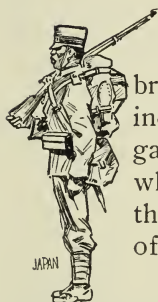


FIGHT OF THIRTEENTH (JAP.) CAVALRY WITH ENEMY NEAR SHAHOTZA.

CAVALRY OPERATIONS IN THE RUSSO-JAPANESE WAR.

BY LIEUT.-COLONEL JOHN C. GRESHAM, FOURTEENTH CAVALRY.

BEGINNING OF THE WAR.



AT the beginning the active army of Japan had, besides thirteen divisions and other troops, two brigades of independent cavalry and two brigades of independent artillery. The independent cavalry brigade had two regiments of five squadrons each, one of which was left at depot, and six machine guns, and the independent artillery brigade had three regiments of six batteries each.

Besides the independent cavalry there was assigned to each division one regiment of three squadrons, and to each reserve brigade, one squadron.

A squadron had 120 sabers. The men were armed with the saber and a carbine of the Arisaka model. The regiment assigned to the Guard Division was armed with the lance. The cavalry carried hatchets and jointed saws in proportion of sixteen or twenty-four to the regiment.

Besides the active army, which was kept filled from the supplementary troops (*troops de remplacement*), there were:

1. A reserve army, sometimes called a depot army, which was grouped into mixed brigades of six to eight battalions of infantry, one squadron and other troops.

2. A territorial army with its reserve, which garrisoned forts, coasts, magazines, etc., and was likewise grouped into mixed brigades.

3. The local troops of Yezo and Tsushima.

The active army with its supplementary troops numbered 340,000 men, 70,000 horses and 650 guns.

The reserve army had 50,000 men.

The territorial army had 130,000 men.

But by skilful management during the progress of the war, the actual numbers were largely increased, and the fighting powers of the active army were never sensibly diminished.

The Russian Army on a peace footing embraced twenty-three army corps of Europe, two of the Caucasus, two of Turkestan,

two of Siberia and two corps of cavalry. To these were added, during the war, four new corps of Siberia.

The mobilized Russian corps had two (sometimes three) infantry divisions and one cavalry division besides the other arms. To the cavalry division was assigned two horse batteries of six guns each. This was the rule; but the corps first sent to the Far East had each only one regiment of cavalry, and some had none.

The cavalry was formed in brigades and divisions, which were in turn formed into temporary corps. The dragoon and Cossack regiments had generally six squadrons of 150 sabers each.

The men are armed with the saber, carbine and lance, the last being reserved for the first rank only in those subdivisions provided with it. All sabers were sharpened.

But if the 50,000 men in forts and on other special duties be deducted, the Russian forces ready to take the field in the Far East at the beginning of February, 1904, did not exceed 60,000 of all arms and 200 guns. There were only 3000 cavalry. It may be noted *sotnia* is the Russian word for hundred.

At the end of April Kuropatkin, who reached Mukden March 28th, had disposed his troops as follows:

His main army of 40,000 men was at Liaoyang and consisted of		{ The First and Fifth Divisions of East Siberian Rifles, the First Division of Siberian Reserve Infantry, and two mixed brigades of the Tenth and Seventeenth Corps.	
There were two covering detachments.	{ 1. On the lower Yalu, 20,000 men under Sassulitch.	{ The Transbaikals Cossacks under Mischenco and the Third and Sixth Divisions of East Siberian Rifles.	
	{ 2. At Newchwang and Yinkow, 10,000 under Kondratovitch.	{ The Ninth Division of Rifles.	

There were 30,000 men at Port Arthur and in the Liaotung Peninsula under Stoessel, and 25,000 at Vladivostok under Linievitch. Among the latter was a brigade of Ussuri cavalry.

But Kuropatkin had at his disposal only the 70,000 mentioned above, and as these were much dispersed, he determined to remain on the strategic defensive and delay as far as possible the advance of the Japanese.

OPERATIONS OF THE FIRST JAPANESE ARMY AND ACCOMPANYING
MOVEMENTS OF CAVALRY ON BOTH SIDES TO END OF MAY, 1904.

The plans of the Japanese, though at first hidden in deep mystery, appear from subsequent facts to have been virtually the same as those that led to such brilliant results in 1894.

The object at the outset was threefold: 1. To destroy the hostile fleet. 2. To occupy Corea and make it the base of operations pending further developments. 3. To capture Port Arthur.

Four armies were finally formed, as follows:

First Army, Kuroki: Guard and the Second and Twelfth Divisions.

Second Army, Oku: First, Third and Fourth Divisions.

Third Army, Nogi: Ninth and Eleventh Divisions.

Fourth Army, Nodzu: Fifth, Sixth and Tenth Divisions.



JAPANESE CAVALRY SOLDIER AND HORSE.

Each division was accompanied by its reserve brigade. The First, Second and Fourth Armies were to take the field, the Third to take Port Arthur.

The Seventh and Eighth Divisions remained provisionally in Japan. The independent brigades of cavalry and artillery were assigned to the Second and Fourth Armies.

The object of the First Army, which, including its three regiments of divisional and three squadrons of reserve cavalry, numbered some 65,000 combatants, was to occupy Corea and

secure the passage of the Yalu. Its mobilization was complete about February 15, 1904.

The Twelfth Division, after landing at Chinampo, got orders to occupy Pingyang, which was seized by its advance guard brigade March 5, 1904. This brigade was covered in its march by small mixed detachments of infantry and cavalry, through which it maintained contact with the cavalry of Mischenco.

The several divisions, after landing for most part at Chemulpo and Chinampo, were concentrated by difficult marches at Anju on April 4th.

February 24, 1904, near Phenyang in Corea, a patrol of Cossacks fired the first land shots of the campaign and were, of course, repulsed.

The Russian cavalry came into serious contact with the Japanese for the first time on the 23d of March, 1904, in the neighborhood of Paktchin, in the northern part of Corea, about thirty kilometers west of Anju. General Mischenco, commanding the Transbaikalian Cossack Brigade (three regiments of six sotnias each), had, in fact, crossed the Korean frontier about the 20th of February with two regiments (twelve sotnias) and a battery of horse-artillery of six pieces to march on Pingyang through Anju. The third regiment of this brigade had been sent to the Kwangtung. General Mischenco retired before the advance guards of Kuroki's army and withdrew toward the west.

There was an encounter March 28th near Chengjiu between the advance guard and Mischenco's Cossacks.

Mischenco had five troops successively dismount and take position on an eminence about 500 meters from Chengjiu and opened fire upon this place, which was occupied by a few Japanese dragoons. After a fight which lasted one and a half hours, Mischenco having been informed that a battalion of the enemy was coming to the assistance of the cavalymen, gave the order to retreat. There were very few losses on either side.

Toward the end of April, 1904, the brigade of Ural Cossacks was sent to Liaoyangvopen to observe the Mongolian frontier, along which Japanese detachments and Hunghouse bands were operating. On the 31st the whole brigade received orders to carry out a reconnaissance toward the south.

A heavy gale of wind from the southwest caused thick clouds of dust which prevented anything being seen beyond 200 yards. After having proceeded cautiously for about nine miles

the main body was about to halt for the day when the patrols sent word that a village in front was occupied by the Japanese.

While the advanced guard sotnia prepared to make a frontal attack, the fourth sotnia of the Fifth Regiment was dispatched to turn the village from the east, and the fourth sotnia of the Fourth Regiment to carry out the same maneuver from the west. The latter, which was commanded by Captain Jeliesnov, soon disappeared into the dust. After reaching the advanced guard, this sotnia turned to the west, and having gone three-quarters of a mile, turned again to the south and deployed into lava (extended) formation, being preceded 250 yards in advance by a troop, also in lava formation. When three miles were marched in this order without anything being seen, Captain Jeliesnov halted and sent a report to the brigade commander by a patrol. Within five minutes the patrol commander returned at a gallop and stated that a Japanese squadron was leaving the village followed by another body of Hunghouses, going toward the north. Captain Jeliesnov reassembled the sotnia and prepared to charge when the hostile squadron had passed the second village. His subaltern, who was on the left of the sotnia, bravely hurled himself, with a few Cossacks, on the head of the hostile squadron. One troop went to his support, and the three other troops fell on the enemy's flank. After sabering some Japanese the sotnia pursued them as they fled southward. While the Russians used, almost exclusively, the *arme blanche*, the Japanese endeavored to use their rifles. This latter was the invariable rule with the Japanese.

On May 2d, while the brigade was returning, the flank patrols signaled that about a squadron of Hunghouses had entered a neighboring village, and a portion of them were occupying a small wood. The sixth sotnia was sent to drive them out. A half sotnia advanced in lava formation, the other half followed grouped in support. At 1500 yards from the wood, the bullets began to whistle round, which caused the second half sotnia also to deploy into lava. The first half then drew swords and charged, supported by the second half.

At about 1000 yards from the wood a marshy piece of ground had to be crossed, which could only be done slowly. It was crossed, however, and the charge resumed. The Hunghouses allowed them to get up to within thirty paces, and then attempted to escape, leaving twenty-five of their number on the ground. The pursuit was checked by a heavy fire from the

villages when the sotnia reassembled under cover, dismounted and opened fire. The Hunghouses, numbering about 500, finally drew off when a sotnia of the Fifth Regiment fell on their flank. The Cossacks had only two men wounded, who were able to remain in ranks.

By April 20th the whole First Army was concentrated on the left bank of the Yalu and found Sassulitch with his small army holding the bank opposite. A Cossack detachment with a mountain battery was watching the river above the mouth of the Aiho, and the rest of the Transbaikal Cossacks were observing the coast from the mouth of the Yalu to Takushan.

In the Battle of the Yalu, which followed, the cavalry of neither side did anything of note; but the Russian cavalry failed to discover the turning movement of the Japanese, who completely surprised and nearly enveloped the left flank of their adversary.

On May 10th, while Kuroki's headquarters were still at Anjung, it was reported that Anju was surrounded by the enemy. The facts were briefly as follows: Lieutenant-Colonel Madritoff with three squadrons of Cossacks, one company of mounted infantry from each of the First and Fifteenth Regiments of Siberian Sharpshooters, in all, some 500 men, reached the neighborhood of Anju on the 9th, intending to cut the lines of communication in Corea. Madritoff was sent because of his exceptional familiarity with the country, which enabled him to keep off the beaten roads and avoid the enemy during his entire march.

The garrison of Anju consisted of seventy infantry reservists under a captain. In addition, there were a non-commissioned officer and eight men of the supply department lying sick in the town; one intendant with a non-commissioned officer and interpreter were there cleaning rice; five trained soldiers and two gendarmes were in charge of coolies; and there were five postmen and nine telegraphists besides a doctor, an apothecary and five enlisted coolies. The rifles of those killed at the Yalu had been sent back to Anju. Out of this heterogeneous mass some thirty men were found who could handle a rifle, so that the entire garrison might be reckoned at 100 of all sorts.

Anju is surrounded by walls thirty feet high, forming an oblong 300 by 200 yards, with a ramp inside so men could shoot and have cover up to their shoulders. There are seven large gates.

Though Madritoff used both mounted and dismounted action, and assaulted on all sides, his utmost efforts could not overcome the garrison, which by great good luck was re-enforced about 3 P. M. on the 10th by an officer and seventy men. This small party had halted the night before on its way from Ping-yang and did not suspect the presence of the Russians till they got within a mile and heard the firing. They were merely marching in regular course of relief, but their ignorance indicated careless marching.

The officer in command, quickly realizing the situation, advanced briskly to attack and took the enemy in rear south of the town. This section of the hostile assailants was quickly defeated and the Japanese re-enforcements entered the town. Half the garrison, now boldly assuming the offensive, charged with the bayonet after a few shots at close range. The Russians were driven off and, halting till night on some heights 400 yards away, retreated in the darkness.

The Japanese lost three men killed and seven wounded; the enemy had two officers and fourteen men killed, thirty-five men wounded and two captured.

The Japanese commander had risen from the ranks in the war with China.

At two o'clock in the morning the detachment withdrew some twelve miles. The Russians, exhausted by the long fighting, had hardly gone in bivouac before the vedettes arrived at a gallop and reported they had seen the Japanese, who were evidently pursuing the detachment. Immediately the wounded were started out under the protection of a half troop of Cossacks, and the detachment took position in a defile. After deducting litter bearers, escorts for the wounded and horse holders, there were not more than 180 men available for fighting.

Two companies of Japanese made their appearance about noon and occupied a position some 200 paces away. Friends and enemies remained face to face for two hours without firing, when the Japanese withdrew. The latter probably mistook the detachment for the advance guard of a strong column. They could not have supposed that such a weak detachment would have the audacity to venture alone upon the rear of an entire army.

After destroying all of the train that would have delayed the march of the detachment, Madritoff withdrew toward Tokchen via Kaichen.

The wounded were carried by requisitioned Korean bearers.

While en route, a sotnia was sent out under the command of Lieutenant Girs to reconnoiter the east coast between Gensan and Hamhung.

About fifty miles from Gensan, Girs learned that this town was occupied by 2000 Japanese with artillery; and that the third line of the enemy's defense, Gensan-Pingyan, was not entrenched.

Girs then marched toward Hamhung, which was garrisoned by 600 Coreans, who received him with volleys. To punish the inhabitants, Girs fired the town, and in three hours it was destroyed.

Girs' detachment then proceeded, in the light of the flames, toward Tchentchjine and joined Madritoff at the village of Bemuri just when he was having a lively skirmish with the Coreans, who had occupied a defile with the view of cutting off the Russian retreat. After dispersing them, the column, on May 23d, passed through Tchentchjine, which had been abandoned by its inhabitants and by its Corean garrison, which had withdrawn to the fortress of Kui.

On May 27th Lieutenant Linievitch was sent to the front with half a sotnia to the village of Tehumack-Kori with orders to hold the place at any price until the arrival of the column.

Madritoff had taken this measure because a road led from this river northwest to the Yalu, and the Coreans might have been able to block it with important forces. Linievitch having been fired upon, rushed to the attack, chased the Coreans from the village and held it until the arrival of the column. He had only one Cossack wounded and three horses killed.

Madritoff, who had come up rapidly, dislodged the Coreans from a new position they had occupied on the heights and pushed them in the direction of Kangkia.

There was no further reason for attacking this latter place, since Madritoff had gained all the information necessary. He consequently fell back toward the Yalu after burning forty-eight Corean villages whose inhabitants had gratuitously attacked him.

On June 1st the detachment recrossed the Yalu, and was ceaselessly harassed by the Coréan garrison at Kangkia, which had fired at it unintermittingly, even while it was crossing the latter stream.

After crossing the river the detachment marched in the direction of Kunjensian, where it learned there were Japanese

infantry and cavalry with four guns. Lieutenant-Colonel Madritoff's detachment, including all the wounded, then joined the left wing of the Russian Army. The raid had lasted two months.

On May 12th a party of Japanese cavalry dismounted and attacked Silwanchan, but, having no artillery, were repulsed.

On May 20th two regiments of Russian cavalry dismounted and attacked the village of Chenjiu on the right bank of the Liao, thirteen miles south of Sakumen. The engagement lasted two hours, but the Russians, unprovided with machine guns, were defeated with a loss of 300 men.

On the side of the Japanese mixed detachments disposed checkerwise, and varying in strength from twenty to forty troopers and a half to two companies of infantry, formed around the army a strong network. All the passes and all the roads in the mountainous country of the Yalu were so many points *d'appui* in this screen, which enabled them to conceal their own movements as well as to prevent the Russian cavalry getting accurate information. And the Russians, though vastly superior in cavalry, found few or no opportunities for mounted shock action, while from the very outset hardly a day passed that they did not have to use dismounted action. These engagements often took the form of attack, but from lack of artillery failed to break the strong Japanese screen.

With few exceptions the Japanese cavalry was constantly supported by infantry, behind which, if necessary, they promptly retired.

In the beginning of June thirty-six villages in the south from Pitzevo to Pulantien were so many meshes in the net of the Japanese screen—meshes that could not be cut except by artillery and good small-arm practice, both of which the Russian cavalry lacked.

It must be acknowledged, however, that in strategic reconnaissance this cavalry did keep contact with the enemy, and, for most part, protected their own army from surprise. But in tactical reconnaissance it was much less successful. Moreover, it was discovered later that isolated scouts, singly or in pairs, could do good service in reconnaissance by penetrating the Japanese screen at night, while contact with this screen was maintained by patrols of ten or twelve men who started at dusk and crossed the lines in the darkness. But many of these patrols

were captured by the Japanese; in fact, such captures were almost of daily occurrence.

From the beginning the Japanese used search-patrols consisting of an officer-scout and a few mounted men. A favorite stratagem of these patrols was to lead the Russians into infantry ambushades.

After Kuroki crossed the Yalu, Mischenco's Cossack brigade was employed till the middle of May in reconnaissance duty in front of the First Japanese Army, whose front had been gradually extended to about 100 kilometers.

In the second half of May the Russian cavalry operating along the first line were strongly re-enforced. On the right wing, on the Kaiping-Siuyen line, was the Ussuri Cavalry Brigade and the Siberian Cossack Division under Samsonoff. From these forces patrols were sent out as far as the Liaotung Peninsula. These patrols had many skirmishes with the mixed advance parties of the Japanese Second Army, as mentioned above.

Mischenco's brigade performed the reconnoitering duty to the west of the Haichen-Siuyen road as far as the Liaoyang-Fengwangcheng road, while the Transbaikal Cossack Division, under General Rennenkampf, performed the same service from this latter road to the Russian left wing. General Rennenkampf's cavalry was supported in the mountainous region of this wing, where there are many defiles, by the infantry stationed in the neighborhood of the defile at Fenshuiling. Strong fractions of this general detachment occupied Saimatse and the defile at Motienling.

It goes without saying that the Japanese cavalry were not able to penetrate the heavy screen formed by the Cossacks. In spite of that, the Japanese staff, thanks to the Chinese spies and Hunghouses, was already exactly informed as to the positions, movements and intentions of the Russians.

OPERATIONS IN THE LIAOTUNG PENINSULA.

The Second Japanese Army under Oku, numbering 75,000 effectives, began to land at Pitzevo May 5, 1904, and finished disembarking May 20th. It included the First Independent Cavalry Brigade besides three regiments and three squadrons of divisional and reserve cavalry.

As soon as the landing began Oku pushed out his small mixed detachments, as usual, and found little difficulty in driv-

ing back the advanced Cossack posts and in breaking, in some measure, communication with Port Arthur. This communication was wholly cut by May 13th. The last train that passed bore Admiral Alexieff to Mukden.

A few days later, and while the First Army was marching on Fengwangcheng and the Second Army was forcing back the Russians to Port Arthur, the Fourth Army under Nodzu, consisting of three divisions, landed at Takushan. This army had also three regiments of divisional and three squadrons of reserve cavalry. The Second Independent Cavalry Brigade was also attached to it.

About the same period the Third Army under Nogi, destined to besiege Port Arthur, landed at Pitzevo and in Kerr Bay.

OFFENSIVE OF THE SECOND JAPANESE ARMY.

Covered on the north by its independent cavalry brigade, the Second Army began its march south on May 21st. It had an effective strength of 40,000 men with 216 field-guns. The heavy artillery was left behind. Marching in three columns, with little resistance it defeated the Russians on the 26th at the important Battle of Nanshan. The Japanese fleet took a strong part in the fight.

The cavalry on neither side did much in this battle.

MARCH OF THE FIRST JAPANESE ARMY ON FENGWANGCHENG.

After the Battle of the Yalu, the First Army took some rest, and did not begin its advance till May 4th. On May 11th it was concentrated at Fengwangcheng, where it remained till the middle of June. During this march the Russians, now under General Keller, who had replaced Sassulitch, were constantly forced to retire. For accompanying operations of cavalry see above. During his stay at Fengwangcheng, Kuroki busied himself sending out reconnaissances in all directions and building around his army a zone of security, in which advanced posts strongly re-enforced by field-works resisted all efforts of the Cossacks to break through.

THE RUSSIAN ARMY FROM MAY 1ST TO MIDDLE OF JUNE.

While the Japanese were landing their several armies, their adversaries were successively strengthened by the arrival of the second and third reserve divisions, by part of the troops from

Vladivostok and by the first fractions of the Tenth and Seventeenth Corps. From Vladivostok came the Ussuri cavalry brigade.

Kuropatkin sent two covering forces, each of 20,000 men, one toward Fengwangcheng, the other toward Kaitchiao; the former under Keller, facing the Motienling pass, confronted Kuroki, and was covered in its front and on its left flank by Rennenkampf's Cossack division; the other, under Zarubaieff,



N. C. O. FIFTY-FIRST DRAGOONS—SHOWING AUTUMN UNIFORM AND PACK—PACHIAATZA

operated toward Tashichiao, confronting the Fourth Japanese Army, and was covered in front by Mischenco's Cossack brigade.

On account of these detachments, the central Russian force at Liaoyang in the middle of June had scarcely 30,000 men and the garrison of Vladivostok, under General Linievitch, was reduced to 10,000.

The constant activity of the Cossack cavalry led to frequent combats with the mixed detachments covering the First and Fourth Japanese Armies, and the study of these combats will be of special interest from the important part mixed detach-

ments and reconnoitering cavalry must play in future arrangements for security and information. At the risk of being tedious, these combats are therefore treated in considerable detail.

THE OPERATIONS OF RENNENKAMPF'S COSSACK DIVISION FROM
THE 1ST OF MAY TO THE 2D OF JUNE.

After Kuroki's army had crossed the Yalu, General Rennenkampf with three regiments of cavalry was directed to watch its movements. The complement of officers in these three regiments was filled by volunteers from the cavalry regiments of the Guard. Rennenkampf had showed capacity in the late campaign in China; he knew the country as well as the Japanese, and was thought to combine exceptional bravery with coolness in fighting.

Many of the men of these regiments had been under fire, but they were not as well disciplined as those in other Cossack regiments.

The horses were small, poorly bred Siberian animals, many of which had just been taken from the plow, and they did not promise much endurance.

Before the departure of the regiments from Liaoyang, the skirmishes and engagements had begun with the Japanese in Corea and on the Yalu. Heavy losses in officers proved that the Japanese were good marksmen and that their best shots had orders to shoot exclusively at officers. For this reason measures were taken to make both officers and men less conspicuous, and they were reuniformed in gray blouses.

Equipages were reduced to the barest necessities, and field cots were forbidden.

At dawn, May 1st, the regiments set out singing, and were escorted by the commander of the army and his staff, who wished General Rennenkampf success.

The column first followed the Fengwangcheng road and, having arrived at Lanshaigun, changed direction for Saimatse, where it arrived May 5th.

This locality was chosen as a base of operations; for, being midway between the Liaoyang-Fengwangcheng and the Mukden-Fengwangcheng roads, the column could observe both routes simultaneously.

The detachment remained at Saimatse until May 10th. Rennenkampf made a reconnaissance in force along an extended

front, and ascertained that the main body of the Japanese were concentrating at Fengwangcheng and were busily throwing up works.

After convincing himself that this was the state of things, he resolved to go to Kuandensian, so as to gain the enemy's right flank, or his rear, if this locality were not occupied. According to information given by the Chinese, Kuandensian was held by the enemy.

Cornet Baron Vrangél, of the Argun Cossack Regiment, received orders to reconnoiter Kuandensian. This officer penetrated the town and ascertained that no hostile forces had been there but a few patrols. Vrangél reported this to Rennenkampf who, by passing through Ayanyamine, had reached Sydzumine pass with his division. From there the general detached five sotnias, which advanced toward Kuandensian with an advance guard of two sotnias of the Argun and one of the Nertchine Regiment, under Captain Prince Karageorgevitch. This detachment left May 11th at 5 A. M., and arrived at Kuandensian about 1 P. M. Upon entering the town they learned from the inhabitants that an Argun Cossack had been killed by a Japanese patrol and buried near the city wall.

The corpse was exhumed to bury it according to the orthodox ceremonial. Upon examining it, the surgeons ascertained the wounds had been made after death. The obsequies were fixed for 4 P. M., that the general, who arrived in the afternoon, might assist. But the funeral had hardly begun when it was interrupted by volleys from outside the town. It was necessary to abandon the unfortunate man and gallop away.

The Cossack vedettes returned at a gallop and reported the approach of Japanese infantry and cavalymen, who seemed desirous of enveloping the Russian right flank. There were about one battalion and a half squadron of the enemy.

One sotnia of the Argun Regiment was immediately dismounted and deployed as skirmishers. Another sotnia remained mounted and was ordered to ford the Daopu River and take position beyond some hills which rose about a mile and a half west of the town.

The rest of the detachment advanced in the same direction to draw the Japanese that way. But the latter halted at Kuandensian.

The detachment concentrated at Ayanyamine. It had only

one man wounded and two horses killed in this affair. The Japanese losses were also insignificant.

Rennenkampf having learned that the disposition of the enemy's forces also included Kuandensian, left Ayanyamine and returned to Saimatse, where he remained till May 24th.

On May 12th three sotnias of the Ussuri and Argun Regiments were sent under Colonel Kartsev into the Tsacho Valley, where they passed the night four and a half miles beyond a mill. Having learned from the Chinese of the presence of large hostile forces, Kartsev returned to Saimatse, where he left the Argun Cossacks and started with the Ussuri Cossacks for Lanchaiguan, to assure himself that the enemy was not making any demonstration in his rear. On May 14th the Argun Regiment was sent southward into the valley of the Tsacho. On May 16th Rennenkampf started southward through the Badaoho valley, with the other regiments. He sent two sotnias of the Nertchine Regiment into the Aiho valley. In this way he began to keep in touch with the enemy in the direction of Fengwangcheng.

The two sotnias of the Nertchine Regiment crossed the Aiho valley without incident and joined the detachment four and a half miles north of Vendziatun. Upon arriving near this place, the cavalry was received by shots from behind the walls of the town. One sotnia of the Nertchine Regiment (Captain Melikov), one sotnia of the Argun Regiment (Captain Vlasov), and another of the same regiment (Captain Pieskov) quickly dismounted, and advanced to the attack under the command of Prince Karageorgevitch. The Japanese were driven from Vendziatun and withdrew a mile and a half to the south. The battery did not fire upon them.

The enemy again took position and opened fire. The third and fourth sotnias of the Argun Regiment dismounted, while the fifth went on horseback to turn the hostile left.

The fight was short. The Japanese withdrew. Nine Cossacks were killed.

But the Russians soon had to retreat in their turn, for the enemy, re-enforced by a battalion and a battery, at once took a strong position. Rennenkampf's division returned to Saimatse, where it remained till May 18th to rest the horses, which had nothing to eat but the kaoling (straw) with which the houses in the Chinese villages are thatched.

In spite of the difficulty of feeding the horses, Rennen-

kampf retained possession of Saimatse because that town was an important strategical point.

Five sotnias under General Liubavine were again sent toward Daoziandtse and Shiautchen via Ayanyamine, to see if the enemy had changed his dispositions. This column was covered by a sotnia of the Argun Regiment under First Lieutenant Prina-Magalov. When the latter arrived at the above-mentioned village at 6 p. m., a fire and a signal station were seen on a hill near by. A platoon of Cossacks was immediately sent there and on closely examining the imprints in the sand the chief of the platoon was convinced that the Japanese, about twelve in number, had just left. Two sotnias of the Argun Regiment under Lieutenant-Colonel Khrulev were sent toward Shidziaputsa, and Cornet Baron Vrangél went forward to the Aiho.

A Chinaman who was sent to Shiautchen returned with the news that this village was occupied by only a mounted patrol of thirty men. Baron Vrangél also ascertained that the village of Dalu (Daru) was occupied by one battalion and one battery, that two companies were posted in a pass, and confirmed the information of the Chinaman concerning a mounted patrol at Shiautchen. He also discovered that the Japanese intended to advance that day upon Shiautchen. Baron Vrangél carried this news to the village of Shidziaputsa, where Rennenkampf had already arrived. On learning this, he started for Shiautchen, while Colonel Kartsev went with two sotnias to turn the Japanese. Unfortunately, this officer was too late, and thus permitted the latter to withdraw toward Daru.

The cavalry which followed the Japanese received volleys from the village of Shidziaputsa; First Lieutenant Ulagoi was badly wounded, as were two Cossacks, one of whom died.

The fight at Shidziaputsa lasted some three hours, and then, as the Japanese were re-enforced by two and one-half battalions, the Russians had to withdraw. The division passed the night near Laubayangou.

The next day it made a forced march of thirteen hours, through rain, to gain the hostile right at Shaogou (not far from Kuandensian); men and horses were greatly fatigued. A half sotnia of the Argun Regiment was fired on while going to relieve an outpost. Cornet Barbash was wounded.

Rennenkampf led the attack at the head of a platoon, and taking a Cossack's carbine, fired sixty shots. The sotnias gal-

loped in succession to their places and deployed as skirmishers. The fire became very strong. This fusilade had lasted three-quarters of an hour, when it was thought time to load the packs. The sotnias began to withdraw under heavy fire, while the trumpets sounded and the Cossacks sang "God shield the Czar."

Their losses were as follows: Cornet Barbash and two men wounded; two horses wounded, and five other horses fell from exhaustion.

May 23d Rennenkampf entered Ayanyamjine and remained there the 24th.

On the 25th the outposts signaled the approach of the Japanese. Six platoons of the Argun Regiment deployed as skirmishers and opened fire upon them. Captain Shundiev, who commanded these six platoons, was soon wounded and was relieved by Second Captain Gregory. First Lieutenant Tulzakov was also seriously wounded.

Baron Vrangél, who had been sent to the right to avoid a turning movement, surprised a mounted hostile patrol and placed several of them *hors de combat* while the rest fled. The Japanese infantry now began volleys at 2000 yards.

The sotnia then withdrew under protection of the half sotnia under Vrangél, which was dismounted.

Two Cossacks were killed and eleven wounded.

Returning to Saimatse, Rennenkampf remained there three days; lack of forage obliged him to withdraw to Tsiantchan (sixty kilometers north of Saimatse), where was found everything needed for men and horses. But the Cossacks had hardly prepared bivouac when General Sheikherth arrived at dawn of the 31st of May with orders from the commanding general to drive out of Saimatse 3000 Japanese reported there.

General Count Keller, commanding the Column of the East, was also ordered to march on Saimatse, and left Liaushaiguan with strong forces of infantry.

The flank guard under Kartsev, mentioned above, was placed under Rennenkampf, who left to take command. He rode 138 kilometers in twenty-four hours, going via Siaosyr.

The regiments under Liubavine advanced from Tsaishan toward Saimatse. Arriving at the Fenshuiling Pass the Cossacks bivouacked beneath the crest, which was occupied by one sotnia.

On June 1st Liubavine's column advanced through this pass

toward Saimatse. The advance guard, under Colonel Baron Dellingshausen of the Guards Dragoons, comprised two sotnias of the Nertchine and one of the Argun Regiment. This officer detached dismounted scouts on the flanks to follow the summits of the mountains. When tired, they were relieved by others.

In this part of southern Manchuria, where nothing is seen but mountains, ravines and passes, and where there are no roads, the cavalry could march only in column of files. During most of the way they had to lead their horses up and down the slopes.

It was impossible to procure food for men and horses at any price. The officers lived on rice and tea without sugar; the Cossacks on roots and grain they crushed with stones, and instead of tea drank hot water.

It is declared that Rennenkampf succeeded, and that not a single Japanese patrol was able to approach Liaoyang. He reported, however, that no strong hostile forces intended to march on Mukden and Liaoyang, which seems to have been a grave error. He tried to set a good example to his officers, rose at 5 A. M., and was always on the firing line, where his flag, boldly displayed, made him the center of hostile bullets. This part of his example can not be commended as a rule.

The general nature of the theater of war determined the commanding general, in May, 1904, to create a body of mounted scouts consisting of two squadrons. This body, which was made up of the best officers and soldiers of the Manchurian cavalry, was placed under the command of Captain Drozdovski (Thirty-ninth Regiment of Dragoons of Narva), and was particularly charged with strategical exploration. Each squadron consisted of five officers and from 150 to 180 men. All the cavalry regiments were represented in this body; the Dragoons and the Don, the Ural, the Orenburg, the Siberian, the Transbaikal, the Amur and the Ussuri Cossacks. The men who were assigned to it were all intelligent and brave. As for the officers, the most of them belonged to the cavalry regiments of the Guard.

During battle the scouts were at the disposal of the commanding general, who made use of them to obtain information of the different events of the struggle; during the periods of lull, they made strategical explorations on the rear and the flanks of the Japanese.

Rennenkampf was a student and admirer of Gen. Sheridan.

WORK OF MISCHENCO'S BRIGADE FROM THE 18TH TO THE 28TH
OF MAY, 1904.

General Mischenco was charged with the service of reconnaissance between the Haicheng-Siuyen and the Liaoyang-Fengwangcheng roads. This was a heavy task, as Mischenco had at that time only the Transbaikal Cossack Brigade (the First Verkhneudine and the First Tchita regiments).

Mischenco sent a large number of small patrols and eight officers' patrols from 40 to 60 kilometers in advance of his main



GENERAL MISCHENCO DISCUSSING THE SITUATION WITH COLONEL PAVLOV.

body. The officers' patrols had orders to penetrate the hostile lines, try to see what was taking place in their rear, and keep in touch with Rennenkampf's Cossack division to the east. There were times also when entire sotnias and even the whole brigade went on reconnaissance.

A few words regarding the eight officers who penetrated the Japanese lines will be of interest. These men were: Second Captain Potatski, Cornet Tokmatov, First Lieutenants Sierikov and Saraev, Lieutenant Sviatopolsk-Mirski, Second Captains Braunschwig and Ikevski, of the cavalry, and Cornet Fitshev.

The first two, accompanied by eighteen Cossacks, succeeded in gaining Piamyne, penetrating a continuous line of guards and sentinels. Sierkov, Saraev and Mirski sent back their men and horses and continued alone on foot. Sierkov got within three kilometers of Fengwangcheng. Saraev and Mirski, unable to penetrate the third line of Japanese outposts, had to turn back, but brought important information. They were constantly in danger, and had to go through the mountains without food or shelter.

These officers' patrols were sent out May 18th, while Mischenco's brigade was bivouacked near Puatzihe. The general situation was then as follows: The third sotnia of the Tchita Regiment was charged with the mobile telegraph station between the passes at Daling and Padzahe; the second and sixth sotnias of the Verkhneudine Regiment were 100 kilometers away, at Sandaoling, marching to join the detachment; the second sotnia of the Tchita Regiment had been pushed forward in reconnaissance toward Khabaling; the fourth sotnia had been sent for like purpose toward Selizai; the sixth sotnia was advanced to Autchitan to reconnoiter the Selizai-Fengwangcheng road; the third sotnia of the Verkhneudine Regiment had been sent in the direction of Launmaio, Handuhan and Daguchan.

Mischenco had directly under his own command only the first and fifth sotnias of the Tchita Regiment. The patrols of the second sotnia of the Tchita Regiment (at Khabaling) reported the pass at Kuantchi (two kilometers from Khabaling) occupied by Japanese infantry and one squadron. This sotnia was in the Hot Springs Valley, and had to reconnoiter the Pynuza road on the 19th; at this time the fourth sotnia of the same regiment was holding the village of Selizai.

Early on the 19th the first and fifth sotnias of the Tchita Regiment left under Colonel Pavlov to support the second just as the latter, without waiting re-enforcements, was setting out; it encountered a reconnoitering party consisting of some fifty hostile cavalry two or three kilometers from Pynuza. The Japanese halted to utilize the cover offered by the terrain, which was mountainous and badly cut up, but when they saw two platoons of the Cossacks turning their left, they turned and galloped back. Excited by the pursuit, the Cossacks did not notice that the enemy, in falling back, were drawing them upon the infantry, in ambush on the wooded slopes of the mountains. A volley of musketry obliged the Cossacks to halt

and withdraw a short distance. To dismount and take cover behind the rocks on the opposite mountain took but a moment, and three platoons opened fire on the enemy. As night was approaching the sotnia ceased firing and withdrew upon Dziudianuzu. In this skirmish the Cossacks lost two killed and one wounded. The Japanese, nine killed and one wounded.

The men had just driven their picket pins so their horses could graze, and kindled the bivouac fires to make tea, when the vedettes in rear reported three Japanese squadrons approaching. They mounted at once. Just at this moment the sixth sotnia of the Tchita Regiment dashed out of the Hot Springs Valley toward the firing. Covered by patrols, the two sotnias advanced on Toinzu, where the following morning they joined Pavlov, who had traversed the Todagou and Tukhogou valleys.

At 5 P. M., by order of Mischenco, who wished to concentrate upon the left a force strong enough to envelop the enemy's flank, the sixth sotnia of the Tchita Regiment joined Pavlov. Between 4 and 5 P. M. the commander of the fourth sotnia reported a Japanese squadron, supported by infantry, approaching from the direction of Khabaling toward Selizai.

Late events had indicated pretty well that there was bivouacked near Khabaling-Khuantchi the entire infantry division of the Guard (with a regiment of cavalry). Mischenco therefore resolved to re-enforce the fourth sotnia with the first and fifth of the Verkhneudine Regiment under Colonel Matsievski. Having on his left flank the four sotnias of Pavlov's regiment, and with himself the second and sixth of the Verkhneudine Regiment, he determined to accept combat, hoping to disperse the enemy by hurling Pavlov's sotnias upon his flank.

In accordance with this decision the third sotnia of the Verkhneudine Regiment got orders to start immediately for Padzahe. Closely pressed by the hostile infantry, and fearing for its left flank, the fourth sotnia began to retire under the heavy but badly aimed fire of the Japanese, but was joined by Matsievski, who had bivouacked during the night near Mauhe, close to the enemy. While pushing forward on Selizai, the Japanese were also marching through the mountains so as to outflank the left of Matsievski, who, therefore, also had fears for this flank. In reality, this turning movement was most desirable, for the Japanese were exposing their flank to Pavlov, and this was what Mischenco wanted.

It was learned late at night that the third sotnia of the Verkhneudine Regiment had got orders to join the detachment; the commander of this sotnia had resolved, en route, to reconnoiter Daguchan and the Siuyen road. It must have been that the commander of this sotnia, from information given by the Chinese, did not reckon on meeting a detachment of more than seventy men. But this was just the time of the debarkation at Daguchan when the infantry and cavalry were camped in the woods and villages near Senkhutchenzu. About 9 P. M., when it was already dark, this sotnia was marching along near the village, trying to observe every requirement of security. But on account of the darkness it did not see a Japanese sentinel hidden in the brush. The sotnia continued its march with its two officers in front. Suddenly was heard a shot in rear of the column. A moment later came a volley from fifty paces in front of the sotnia.

Keeping his presence of mind the commander ordered the charge, and galloped on followed by his men. But the small Transbaikian horses soon came upon a marshy rice paddy and began stumbling, falling and rolling. Another volley came; then on three sides crackled a rolling fire of musketry. One of the first volleys mortally wounded Second Captain Beklemishev, the commander. In falling, he managed to shout: "Brothers, push forward to the right." Thrown into disorder the Cossacks dispersed. Some succeeded in getting through the enemy in spite of their murderous fire. The Japanese were so stunned by this audacious charge that they fired into one another.

The courage and fortitude of the Cossacks was demonstrated in the following ways: Though getting shots from nearly all sides, they made three attempts to reach Beklemishev's body, but received each time with murderous fire, were forced to retire. Still, most of them were able to pass the Japanese and gain the mountain, where they assembled in small groups and rejoined the regiment. Many of them lost their horses and returned on foot, without maps, across rocky mountains devoid of roads. They did not know the language of the country, had no guides, though Japanese patrols were everywhere, and they were obliged to hide in holes and ravines. Some, betrayed by Chinese, held out in short struggles with Japanese patrols. Though famished and exhausted, they managed to make over seventy kilometers, and not a man abandoned his carbine or saber. Many brought in valuable information.

The sotnia lost twenty-six men (seven killed and nineteen wounded) and its three officers (one killed and two wounded). The others rejoined the regiment.

The news of the repulse of the third sotnia came late at night. At dawn the general ordered a half sotnia forward on the Senkhutchenzy road to protect the Cossacks seeking to rejoin. But just at this time the Japanese made an energetic attack after deploying a heavy line of skirmishers. It was then 6.30 A. M.

One patrol, commanded by First Lieutenant Tcheslavski, disclosed a movement of the Japanese. This officer had six wounded in a fight with a battalion of infantry. The Japanese losses were unknown. Colonel Matsievski's sotnias commenced to withdraw slowly without replying to the volleys and the murderous rapid fire of the Japanese skirmishers. The colonel followed the valley of the Daniho, which is only the dry bed of a small tortuous water course with very wide, gently sloping sandy banks, until he came in sight of Puatzihe, about 8 A. M. Instead of advancing on Talenkhu, according to previous orders, Pavlov was directed to wait at Puatzihe. And, to have cover as he should debouch from the valley, a half sotnia was deployed on foot along the Daniho.

Toward 11 A. M. the heights east of Puatzihe, left of the water course, were occupied by the Japanese, who opened fire with well-directed volleys.

After sending the packs and sick and wounded forward on the Siuyen road, Mischenco ordered Matsievski's sotnias, which were in reserve in rear of the village, to move forward also on this road. They were followed by Pavlov, who was somewhat delayed while the fifth sotnia was assembling its patrols. To cover this movement the second sotnia of the Verkhneudine Regiment was deployed along the stream. This was a little past 2 P. M. The second sotnia of the Tchita Regiment came at the trot, dismounted, and took position on the left.

The Japanese made a feeble attempt to cross to the right bank with a patrol of cavalry and a platoon of infantry. But received by heavy fire, these units withdrew with considerable loss. Under orders of the chief of the detachment, a half sotnia of the Tchita Regiment made a skilful attack on the infantry hidden in the woods on the left, dispersed and drove it to the right bank. The detachment having crossed and had time to withdraw on the Siuyen road, the second sotnia commenced to

withdraw slowly, leaving posts of observation on the crests of the mountains. About 10 P. M. they joined the detachment, which bivouacked near Sendzian.

This affair, although insignificant in itself, made the enemy deploy two battalions, and confirmed the supposition that units of the Japanese Guard were on the line Khabaling-Khuantchi-Selizai.

Unfortunately, the plan of the chief of the detachment, which was simple but ingenious and bold, and which might have wholly defeated the enemy, could not be carried out for the reasons given above.

The next day, after sending patrols southeast of Siuyen, the detachment commander decided to give a day of rest, and to take the opportunity of sending the wounded and the men and horses that were tired out through the Daling Pass. Late in the afternoon information began to come in concerning the enemy. In spite of the desire to allow the horses rest, it was dangerous to remain at Sendzian, because it is situated in a wide but short ravine, enclosed on all sides by mountains with only two exits, one, on the Sedschohe side, in rear of the detachment, where hostile patrols had already been seen, and the other toward Siuyen.

Had this defile been occupied by only a few of the enemy, the detachment would have been able to escape only by the difficult mountain trails. Consequently, the commander decided to advance toward Siuyen and bivouac on the Daling road on the other side of the first pass leading out of Siuyen. No more favorable spot could have been chosen; for from there the detachment could easily reconnoiter both roads by patrols, the Selizai road and the Daguchan road. If it became necessary he could leave with all or only part of his brigade.

The detachment set out late in the evening, and maintained the greatest silence. A half sotnia of the Verkhneudine Regiment acted as flank guard; the detachment followed a trail to the right of the main road. The rear guard was composed of the second and sixth sotnias of the Verkhneudine Regiment. The route was very difficult. The trails were almost perpendicular where they passed over abutting rocks. In places the route was enclosed on two sides by abrupt precipices.

It was far past midnight when the rear of the column began to reach bivouac. Fires were at once lighted and the men, tired and numbed by dampness, hastened to make tea, which a Trans-

baikal Cossack cannot do without, and which, for him, takes the place of dinner and supper. The horses were picketed, but there was no forage, as it could not be found in the darkness. Generally speaking, the question of supplies was very serious here; it was more complicated because the Tifanguan of Siuyen was very hostile and closed all the stores and forbade anything to be sold. The general, who was very patient, did not wish to use force, but when the Tifanguan began to incite the population against his men, he had him arrested and sent to Liaoyang.

Another reason was that on account of the constant movements of the column the intendency could not furnish supplies, so that requisitions were necessary. This method of resupply had difficulties, though a good price was paid for everything. The inhabitants sold their provisions unwillingly, because they had little and would end by having nothing for their own use. While operating in mountainous regions the situation was still more difficult, for the inhabitants themselves had nothing to eat.

The patrols sent toward Oulaasu (on the Daguchan road) having reported the enemy's patrols near that village, Mischenco resolved to make a reconnaissance with his entire brigade as far as Oulaasu, with a view to immediate contact with the enemy. On the 24th of May the brigade started, leaving at the bivouac the sick, the non-effectives and three sotnias to cover its rear.

Upon arriving at the village of Oulaasu the column halted, and just at this moment a Cossack came at a gallop and reported a patrol had been fired on. The Cossacks advanced at a trot toward the firing and a half hour later came to a narrow gorge, at the other end of which were two ravines at right angles. At the intersection of these ravines, on the bank of a stream, was a large inn occupied by the Japanese and from which they maintained a well-directed fire on the first ravine. In spite of this, the Cossacks of the sixth sotnia of the Verkhneudine Regiment pushed on under their chief, Second Captain Semenov. After approaching quite close the sixth sotnia dismounted two platoons and fired volleys at 2000 paces. After the first volley there was great confusion in the Japanese squadron, which ceased firing and fled in disorder.

On the 27th the troops rested in honor of the anniversary of the coronation of the Czar.

[TO BE CONTINUED.]

MILITARY BANDS.

BY MAJOR FREDERICK A. MAHAN, U. S. A. (RETIRED).

"Whoever undertakes to write and to speak on the art of music must first have begun by practicing it."—*Jules Combarieu*.



AS far back as history goes music is associated with the military arm of the nation, and it is found among all peoples as a means to raise the spirits and strengthen the courage of troops.

What organizations for music existed among the ancients would lie beyond the scope of an article intended to deal more directly with the present, just as would the drill of the phalanx be out of place in discussing the formation and maneuvers of a company of infantry of to-day.

The military band as we find it to-day had its first beginnings near the middle of the eighteenth century. Bands appeared first in Germany, and were introduced into France about a quarter of a century before the Revolution. The instrumental organization of a German military band toward the latter part of the eighteenth century was: 2 oboes, 2 clarinets, 2 horns and 2 bassoons. Later on a flute, 1 or 2 trumpets, a double bassoon or a serpent were added.

As far back as 1764, brass instruments and those with reeds and keys began to exist legally in the French Guards, to each of the regiments of which there belonged sixteen musicians, exclusive of drums and fifes. Bands were granted to the infantry of the line somewhere between 1785 and 1788. After that the regulations prescribed that the bands should play at the presentation of the colors, take part in military masses, in parades, in escorting high officials, in reviews and in other important functions.

In 1789 forty-five bandsmen from the depot of the French Guards, most of them children of soldiers, formed the nucleus of the band of the National Guard of Paris. These men had

been assembled by Captain Sarrette, of the capital staff, who had been authorized to do so by General Lafayette, then in command. In 1790 the City of Paris refunded to Captain Sarrette all the money he had advanced and took this band into its own pay, increasing the number of musicians to seventy. Several distinguished artists joined the band at this time, upon the pressing invitation of Captain Sarrette. The National Guard was suppressed in January, 1792; the city had no funds, so the support of the band again fell on this officer who, in the name of the artists, obtained from the municipality the establishment of a free school for music, and so preserved for France the excellent musicians whom the troubles of the times would have driven away. This school furnished all the bands of the fourteen armies engaged in the wars of the Revolution; it was called the National Institute. The law establishing the Institute under the name of the Conservatory was passed on Thermidor 12, year 3 (July 30, 1795). Such was the beginning of the now so celebrated National Conservatory of Music in Paris. Originally established to educate bandsmen for the army, it is become to-day one of the best known and most extensive and perfect schools of music in the world. But alas! the foul breath of politics has begun to poison the atmosphere of this domain of art, which is threatened with strangulation by the polluted air.

Fétis gives the following organization of a full band during the French Revolution: 1 piccolo, 4 clarinets, 2 oboes, 2 horns, 2 bassoons, 1 bass drum, 1 pair cymbals and 1 triangle.

The clarinet parts were doubled or tripled according to the importance of the music. But the bassoons were found to be too weak to support the bass part of the band, so the trombone was added. The brilliancy of this new voice seemed, however, to weaken the effect of the higher instruments, so, in order that they should not be crushed, trumpets were added to reinforce them. This arrangement was still not satisfactory, so the serpent was taken in to replace the trombone in soft passages. Finally, as these new instruments caused a lack of proportion in the instrumental mass, the number of clarinets was increased to six or eight. On the other hand, the weaker-voiced oboes began to be much less used.

According to Mr. Vogt, professor at the Royal Conservatory of Music in Paris, who had served for ten years in the band of the Consular and, later, the Imperial Guard, the organization of

this body was 12 clarinets in C, 2 small clarinets in F, 2 piccolos in F, 4 oboes, 4 bassoons, 4 horns, 2 trumpets, 2 trombones, 2 serpents, 1 bass drum, 1 snare drum, 2 pairs of cymbals, 1 crescent; in all 39 men.

Another account gives the following organization for an infantry band under the Empire: 16 clarinets in C,* 1 small clarinet in F, 1 piccolo, 4 horns, 2 trumpets, 4 bassoons, 3 trombones, 2 serpents, 1 buccina,† 1 bass drum, 2 pairs of kettle drums, 1 tenor drum, 2 snare drums, 2 crescents, 1 triangle. Total, 43.

In 1825 a large infantry band was composed of: 2 flutes, 2 small clarinets, 2 first and 2 second oboes, 6 clarinets in B-flat, 2 trumpets in F or E-flat, 4 horns in F or E-flat, 6 bassoons, 2 double bassoons, 2 trombones. Total, 36.

A digression from the organization may be permitted here in order to mention certain improvements which appeared, toward the beginning of the nineteenth century, in the so-called brass instruments. These instruments as they existed up to this time, save the trombones, had no notes other than those to be obtained from the natural tube. These notes were at most only twelve in number, and rarely, as a rule, more than eight, and of these never more than three or four consecutive. A German, Weidinger, conceived the idea of making holes in the side of the bugle, like those of the flute, oboe, etc., and covering them with keys. This idea was applied to the infantry bugle, and the Kent or key bugle was the result. Cadets of forty years ago undoubtedly remember old Benz, the bugler of the Academy. The instrument he used for sounding the calls was a key bugle. An application of the same system to the serpent gave the ophicleide.

Two makers working together, Blümel, a Silesian, and Stoelzel, a German, invented the pistons which have since come into general use. Applied first to the horns, the pistons gradually invaded the ranks of all the cupped mouthpiece instruments: trumpets, trombones, flugelhorns, etc. On the other hand, the creation of new instruments, as the Russian bassoon, tubas and others come to mark this same period, and the result of all these discoveries was a complete overhauling of military bands. Still,

*The clarinet in B-flat was substituted first for the one in C, in the French Army, in 1814; the change was made obligatory by order of October 13, 1823.

†The *buccina* was an instrument made of brass, whose tube had the proportions of those of a trombone. It had no slide or other means of altering its length.

neither in Germany nor Austria did these new piston or chromatic instruments make rapid headway. About 1825 the Austrian infantry bands had 32 performers arranged thus: 1 piccolo D-flat, 2 clarinets A-flat, 1 clarinet E-flat, 9 clarinets B-flat, 1 bassoon, 1 serpent, 2 tenor trombones, 1 bass trombone, 2 horns E-flat, 2 horns A-flat, 2 key trumpets E-flat, 2 trumpet A-flat, 2 trumpets in high E-flat, 1 trumpet low F, 1 trumpet in C, 1 trumpet low E-flat, 1 snare drum.

The German infantry bands had, at this time, flutes, oboes, clarinets in B-flat, clarinets E-flat or in F, basset horns (same as present alto clarinets), bassoons, double bassoons, bass horn or serpent, horns, trumpets, alto, tenor and bass trombones, signal horns, tenor drums, snare drums, cymbals, bass drums.

The condition of bands in all countries remained in a state of chaos during the period from 1825 to 1845. At this latter date the Prussian bands were composed of: 2 high and 6 or 8 low clarinets playing the melody, 8 or 10 accompanying clarinets, 4 oboes, 2 basset horns (or alto clarinets), 2 flutes, 4 bassoons, 4 horns, 4 trumpets (2 chromatic, 2 ordinary), 4 trombones (2 bass, 1 tenor, 1 alto), 1 serpent, 1 double bassoon (very often 2), 1 tuba, bombardon or bass horn, 1 tenor drum, 1 pair of cymbals, 1 triangle, 1 bass drum.

The Austrian bands had at this time an organization which was, to say the least, erratic. The instruments used were: flute and piccolo in D-flat, clarinets in A-flat, clarinets in E-flat, clarinets in B-flat; horns in E-flat and A-flat; flügelhorns in B-flat (soprano), flügelhorns in B-flat (bass); trumpets in E-flat and B-flat; bassoons and double bassoons; trombones (tenor and bass); bombardons; drums.

The Bavarian bands had an organization quite similar to that of the Prussian.

The French bands were no better than those of Austria and Germany. Chaos was rampant in all countries, and an analysis of the bands in various parts of Europe shows that band organizations were creatures of chance and not of system. It was a real anarchy against which officers, musicians, the press were loud in their denunciation.

Wieprecht, the director of the band of the Guards of H. M. William IV of Prussia, was most earnest and insistent in pointing out the defects of the bands and in suggesting a remedy.

He gave an organization for infantry bands which is still in use, as may be seen by the following comparison:

	Wieprecht's Organization of 1845	Organization of To-day
Flutes and piccolos.....	1	2
Oboes	2	2
Clarinets in A-flat.....	2	1
Clarinets in E-flat.....	2	2
Clarinets in B-flat.....	6	8
Bassoons	2	2
Double bassoons (or batyphons).....	2	2
Trumpets in E-flat.....	4	4
Trombones—tenor	2	2
Trombones—bass	2	2
Flügelhorn in B-flat.....	2	2
Altos in E-flat.....		2
Tenor horns	2	2
Horns (French)		2
Basses in B-flat.....	2	1
Deep basses (or tubas) in E-flat.....	2	3
Battery	6	4

As Wieprecht made the German band in 1845, it remains to-day; improvements have been made in its instruments but not in its organization, this last being still defective, as will be explained further on.

In France the investigation into and the study of the organization of military bands, the examination into the causes of their defects and strenuous efforts for their improvement had been agitated for years. The work was carried on with great care and thoroughness. The earnest efforts of the great musical writers, with Fétis, Castil-Blaze and Berlioz at their head, assisted by the enlightened views of army officers of high rank led by Generals Rumigny, Moline de Saint-Yon and Sebastiani, of members of the royal family and of the nobility, caused a reformation of the military bands to be undertaken. The result was the appointment, as Kastner tells in his "*Manuel Général de Musique Militaire*," "of a commission composed of men whose talent, experience and theoretical and practical knowledge, as well as the work they had done already, pointed them out as being especially fitted to consider this important question of the regeneration of the military music of France." This commission was selected from the highest regions of the artistic world. It included, for the musical part: M. Spontini, Count of Saint-Andron, and Messrs. Auber, Halévy, Adam, Onslow and Carafa, all members of the Institute and all composers of high degree; for the military part: Count Gudin, Colonel of the Second

Lancers, a violinist of remarkable talent, known as having organized the best band in the army with the elements of the old system; Colonel Ribau, of the Fourth Infantry, who had made up, under equally unfavorable conditions, a no less satisfactory whole of soldier-musicians.

The commission thought best to add, for the acoustic part, Colonel Savart, of the Engineers, and for the mechanical part, Baron Séguier, both members of the Institute. Lieutenant-General de Rumigny, who was so rightly entitled to fill this high and important place, was named to preside over this imposing assemblage of *savants* and artists. The secretary chosen was Mr. Georges Kastner, whose works on instrumentation, orchestration and allied subjects, classics in their day and even now of the highest interest to students of military music, pointed him out as one most admirably suited for the place.

A great task, and one most arduous and thorny, had been intrusted to the commission by the Minister of War. Endowed with extensive powers, it was directed to extend its control over everything connected with the question of improving military music. Whenever an abuse was found it was to be pointed out; wherever a cause of imperfection was discovered, the commission was to show the way to overcome it. Its mission obliged it, therefore, to destroy before creating. That is, when a structure is in ruins at the base there can be no partial improvement; it must be torn down from cellar to roof and another must be raised on a better plan and upon a stronger foundation.

The commission held its first session on February 25, 1845. Taking up first the reason for its creation, it examined the condition of military bands in France. After having been forced to admit a steady degeneration and a constant movement downward from the time of the First Empire to the then present, the commission was led to attribute the cause of this decline:

1st. To the suppression of *gagistes*;* 2d. To the use of poor instruments; 3d. To the vicious proportions used in combining the instruments; 4th. To the insufficient number of performers; 5th. To the inferior position of these last. The opinion of the commission on all these points agreed fully with that of the public. In fact, the commission had only to see and tell the truth. Having summed up the obstacles to a satisfactory and rational organization of bands, the commission took into consideration the following three questions which had been propounded by the Minister of War: 1st. How many men are ab-

**Gagistes* were men who were specially engaged for service in the band; they were, as a rule, performers of excellent ability who received very high pay.

solutely necessary for an infantry and for a cavalry band? 2d. What instruments, old or new, should be adopted for each of them? 3d. What are the instruments whose number could be increased advantageously in order to add to the strength of a performance, and in what proportion should this increase be made for each instrument? The commission considered, very rightly, that these questions could be reduced to one: that of a good combination for a military band, hence it did not think well to try to answer each one separately, but to include them all in one examination, passing from one to the other, as occasion required.

After a long and elaborate investigation of methods, instruments, organizations, etc., the commission recommended the following organization:

Infantry Bands.	Cavalry Bands.	Chasseur Bands.
1 piccolo in C.	2 harmony trumpets.	6 trumpets with 3 cylinders.
1 small clarinet in E-flat.	4 trumpets with cylinder.	6 small saxhorns in E-flat.
14 clarinets in B-flat.	2 small saxhorns, E-flat.	12 saxhorns in B-flat.
2 bass clarinets in B-flat.	7 saxhorns in B-flat.	6 saxhorns in E-flat alto).
2 saxophones.	2 saxhorns in A-flat.	6 saxhorns in E-flat (bass).
2 oboes.	2 saxhorns in E-flat (alto).	—
2 bassoons (with copper bell).	2 saxotrombas.	—
2 cornets with three cylinders.	2 cornets à piston.	36 men in all.
2 trumpets with three cylinders.	1 trombone with 3 cylinders.	—
4 horns with three cylinders.	3 slide trombones.	—
1 small saxhorn* in E-flat.	3 saxhorns (baritone) in B-flat.	—
2 saxhorns in B-flat.	3 basses in B-flat, 4-cylinder.	—
2 saxhorns (alto) in E-flat.	3 double basses in E-flat.	—
3 bass saxhorns in B-flat, with three or four cylinders.	—	—
4 double bass saxhorns in E-flat.	36 men in all.	—
1 trombone with cylinders.	—	—
2 trombones with slide.	—	—
2 ophicleides.	—	—
5 men in battery.	—	—
—	—	—
54 men in all.	—	—

*The saxhorn is the same instrument as the flügelhorn.

†The saxotromba differs from the saxhorn only in name. The instrument here referred to is what is known to-day as a tenor.

The commission considered that the line and reserve cavalry regiments might add a kettle-drum player; he should play the snare drum when the band was on foot.

The commission thought that the allowance of \$1,800 a year might be made, with strict economy, to suffice; it recommended that the allowance for cavalry bands be increased from \$500 to \$1,000.

Bandmasters were to have the rank of sergeant-major, assistant bandmasters of first sergeant. The former had to pass an examination to prove fitness.

To sum up, the commission proposed:

1. To take back a few gagistes.
2. To increase the number of men in the bands.
3. To change the composition and organization of the bands as indicated above.
4. To adopt saxhorns (flügelhorns) instead of regulation bugles.
5. To grant a first allotment of funds for both infantry and cavalry bands.
6. To increase the annual allowance for cavalry bands.
7. To improve the status of the army musician.
8. To make as great use as possible of soldiers' children in recruiting the bands.
9. To accept no bandmaster until after he had passed a satisfactory examination.
10. To found a good band journal and invite the bandmasters to give preference to the pieces published therein.
11. To order the introduction of a metronome into each regiment.
12. To prescribe for each band a pitch pipe or tuning fork in B-flat.
13. To adopt, in the infantry, wooden cases for frail instruments.
14. To add an instrument-maker to each band to keep instruments in repair.
15. To make the new system obligatory in all bands of the army.
16. To proceed at once to the organization of *three* model bands.

The number of men allowed to a band had been forty-five; the commission increased this number to fifty-four. The Minister of War found this number too great and reduced it to fifty men. An order from the War Department, dated August 19, 1845, left the organization of the cavalry band as it was drawn up by the commission; the infantry band was reduced to fifty men by leaving out the oboes and bassoons.

The above order, or ministerial decision, goes on to say:

"The number of performers for each infantry band, including the bandmaster, will be twenty-seven bandsmen and twenty-three students—total, fifty; and for each cavalry regiment, twenty-two trumpeters and fourteen students; in all, thirty-six. The student musicians will be chosen indiscriminately from sol-

diers or soldiers' children who may show any special taste for music. The present instruments will be replaced by these mentioned above, either as the old ones become worn out, or by means of requisitions made on the first portion of the general allowance for maintenance. The annual allowance for maintaining the brass bands of cavalry regiments is increased from 2,500 to 5,000 francs. The increase of 2,500 francs will be charged to the allotment for harness and shoeing. The band-master in the infantry will still be selected from the graduates of the *Gymnase musical*, conformably to the ministerial note of March 19, 1840, and will have to pass an examination before a board of which the members of the musical section of the Institute will form a part. A sum of 3,000 francs, chargeable to the general fund for maintaining these corps, in proportion to the allotment given for the maintenance of bands, will be divided annually among the composers who may have presented the best pieces of music as determined by a board composed of the members of the musical section of the Institute.

"A metronome will be provided for each band, whether infantry or cavalry. A fixed tuning-fork in B-flat, conforming to the model approved by the Minister, will also be adopted. Wooden cases will be used in the infantry for fragile instruments. The expenses caused by the three preceding directions will be borne by the first portion of the general allowance in each corps."

This first ministerial decision was far from meeting all the demands made by the commission; and, so far as the mere instrumental part is concerned, it will be noticed that this decision fixed only the organization of the infantry and cavalry bands, while that of the Chasseurs was not included. Attention was paid, however, to the proposals relating to the introduction of a metronome and of a fixed pitch in all bands, as well as wooden cases for fragile instruments and the increase in the cavalry allotment. Moreover, the text of this decision involved a few accessory measures which, while not expressly asked for, must have concurred in the improvements which the commission had in view. Among these were the annual prizes given to composers who should present the pieces of military music judged to be best and so pronounced by the musical section of the Institute. A second ministerial decision, which appeared shortly after the first, had as its sole object to complete the whole of the measures indicated in the report of the commission. This

decision touched only the organization of the artillery bands, which the commission had not considered especially, and which it had included with those of the cavalry. The minister decided that the artillery should have the following organization, which differs but little from that of the cavalry, although somewhat stronger. It included: 4 ordinary trumpets, 6 cylinder trumpets (Sax system), 2 saxhorns in E-flat, 7 saxhorns in B-flat, 2 saxhorns in A-flat, 2 saxhorns in E-flat (to replace horns), 2 saxotrombas, 2 cornets-à-piston, 1 trombone with three cylinders (Sax system), 3 slide trombones, 3 saxhorns in B-flat (baritone), with three cylinders, 3 saxhorns in B-flat, with four cylinders, 3 double-bass saxhorns in E-flat—total, 40.

Such was the outcome of the only really systematic attempt, of which the writer has been able to find any account, to provide a rational and logical organization for military bands. The labors of this commission were carried on thoroughly, and every point relating to instruments was examined carefully before any final conclusion was reached. The result was lasting and has stood the test of time, as it is the basis of the organization of the French bands of to-day, and it is gradually spreading to other lands whenever the study of military bands is taken up seriously by competent men.

The account of the labors of this commission is, necessarily, very brief; those who may wish to study the matter more fully will find the whole subject set forth *in extenso* by M. Kastner, the secretary, in his "Manuel Général de Musique Militaire."

Since 1845 the vicissitudes of the French bands have been many, most of them arising from ignorance, from indifference to music as a moral agent, from so-called economy, which is but a euphemism for stinginess, and from the whims of one person or another who may have happened to have the control of affairs at any given time; for, strange to say, the profound and deep art of music is the one about which every one considers himself competent to speak with authority, and, generally, the less he knows, the more valuable and deserving of attention he considers his ignorance to be.

The writer desires to digress here for a moment to say a word about Sax, the great instrument-maker of his day. Born at Dinant, Belgium, December 6, 1814, Adolph Sax, the great reformer of the wind band, came to Paris in 1839 to exhibit a bass clarinet on which he had made many improvements. A man of unusual ability and a very skilful workman, he brought

his capacities to bear on the family of instruments of which the flügelhorn is the soprano and prototype. His work consisted in giving a great uniformity and homogeneousness of tone to the entire family, from lowest to highest, and so adapted it to its high office as the foundation on which the band, whether brass or reed, is built up. While in no sense the inventor of any part of this family of instruments, he none the less gave his name thereto by calling these instruments "saxhorns." As such they are frequently known in France. But Sax's greatest work, and that by which he is best known, was the invention of the saxophones, a family of instruments which comes in to fill out and strengthen the weakest register of the band. More will be said on these points when the question of instruments is under consideration.

To return to our subject. Hardly was the organization of 1845 well under way when the revolution of 1848 broke out. Sax, at this time, had his hands full of work in supplying the bands with the new instruments ordered. The change of government gave the opportunity to jealous rivals to bring influence to bear on the provisory government, which took away from Sax all the work on which he was engaged under the organization of 1845. The ministerial decision of March 21, 1848, modifying that of 1845, gave the following organization for infantry bands: 1 piccolo, 1 small clarinet in E-flat, 14 large clarinets in B-flat, 4 ordinary oboes, 4 ordinary bassoons, 2 ordinary horns, 2 horns with three pistons, 2 cornets-à-piston, 2 chromatic bugles in B-flat, 2 trumpets with cylinders, 2 ordinary trumpets, 3 slide trombones, 2 chromatic basses, with 4 cylinders, in B-flat, 2 ophicleides, 2 chromatic double basses, with 4 cylinders, in E-flat, 5 in the battery.—Total, 54.

The cavalry bands were allowed: 2 ordinary trumpets, 4 trumpets with cylinders, 2 chromatic bugles in high E-flat, 7 chromatic bugles in B-flat, 2 chromatic bugles in A-flat, 2 chromatic bugles in E-flat (alto), 2 clavicors in E-flat (tenor), 2 cornets-à-piston, 1 trombone with 3 cylinders, 3 slide trombones, 5 chromatic basses, with 3 cylinders, in B-flat, 3 chromatic basses, with 4 cylinders, in B-flat, 3 chromatic basses in E-flat.—Total, 36.

The result of this reorganization (or disorganization, as Neukomm calls it in his "*Histoire de la Musique Militaire*") was that the bands fell below what they were in 1845.

"Let them come or let them go, recruits or old soldiers,

artists of high rank or ignorant students, they are all alike, alike in the well-marked inferiority of their position." So wrote Berlioz in an article in the "Journal des Débats," which gave the depth of the decadence of military music in 1851.

The loud demands made by musicians, by military men and by the press caused a reconsideration. In 1852, M. Perrin published a pamphlet which created a great stir. He demanded loudly that the composition of the bands should be reformed, and that the soldier-artist should be treated morally and materially in such a way as to encourage a vocation which he described as far more intelligent than that of a mere soldier.

This appeal was heard. An experiment was tried by taking the best soloists from each regiment and making of them a model band. They were assembled and drilled with patience; they had been made to rehearse carefully the pieces to be played. The day of trial came; wonders were expected, but the expectation was met by cruel disappointment. The performance was so poor that the musicians were sent back in haste to their bands.

Sax was then called on to organize a model band for the regiment of the Guides. This band was made up as follows: 1 piccolo, 1 flute, 2 oboes, 2 small clarinets in E-flat, 4 clarinets in B-flat, 1 soprano saxophone in B-flat, 1 alto saxophone in E-flat, 1 tenor saxophone in B-flat, 1 bass saxophone in B-flat, 2 cornets-à-piston, 2 horns in E-flat, 4 trumpets in E-flat, 3 trombones, 2 soprano saxhorns in E-flat, 4 saxhorns (flügelhorns) in B-flat, 4 saxhorns (alto) in E-flat, 2 baritones in B-flat, 4 basses with 4 cylinders in B-flat, 2 double-basses in E-flat, 2 double-basses in B-flat, 1 pair of kettle drums.—Total, 46.

This band played with the greatest success before the emperor on New Year's Day, 1853. After the concert the emperor caused Sax to be presented to the entire court by his aide-de-camp, Colonel Ney, Prince of Moskowa.

A decree of August 16, 1854, gave the following organization to the bands of the Imperial Guard:

Infantry: 2 flutes or piccolos, 4 clarinets in E-flat, 8 B-flat clarinets, 2 oboes, 2 soprano, 2 alto, 2 tenor, 2 baritone or bass saxophones, 2 cornets, 4 trumpets, 3 tenor and 1 bass trombones, 2 high soprano saxhorns in E-flat, 2 B-flat soprano saxhorns, 2 alto saxotrombas,* 2 B-flat baritone saxhorns, 4 B-flat bass saxhorns, 2 E-flat double basses, 2 B-flat double basses, 1 bass drum, 2 pairs of cymbals, 2 snare drums.—Total, 55.

*Although Sax produced a family of instruments which he called "saxotrombas," the difference between them and the saxhorns (or flügelhorns) was more theoretical than real. The saxotrombas have now disappeared entirely.

Cavalry: 1 acute soprano saxhorn in B-flat, 2 high sopranos in E-flat, 4 sopranos in B-flat, 2 altos in A-flat, 2 alto saxotrombas in E-flat, 2 baritone saxotrombas in B-flat, 4 B-flat bass saxhorns, 2 E-flat and 2 B-flat double bass saxhorns, 2 cornets, 6 trumpets, 2 alto, 2 tenor, and 2 bass trombones.—Total, 35.

Each band had also a bandmaster, who was a commissioned officer, and an assistant bandmaster who had the rank of sergeant-major.

This organization was soon given to the entire army. Its impression both on the army and in civil life was excellent, and the press was not slow in hailing the new advance with delight.

At the outbreak of the war with Italy, the infantry bands were reduced to forty and the cavalry bands to twenty-five men, this being done to return as many men as possible to the ranks, the average being the ridiculous number of *one* to a company or troop.

In 1867 the bands of the cavalry were abolished for no apparent reason except that Marshal Niel, then Minister of War, saw no use for them. The general outcry which this step caused was probably the means of saving the infantry bands, on the destruction of which he seemed to be equally resolved. The cavalry bands have never been restored.

Marshal Lebœuf, who succeeded Marshal Niel as Minister of War, was even more bent than his predecessor on the destruction of the bands. Fortunately the outbreak of the Franco-Prussian War gave him other occupation and the bands were saved.

Undoubtedly, while the marshal was at his work of destruction he had lost sight of this note which Napoleon I sent to his Minister of War after the disaster at Leipsig:

"I have reviewed several regiments which had no bands. It is intolerable; make haste to send me some."*

The Franco-Prussian War sufficed to play havoc with the military bands of France. In the old times the bands continued to play while the battle was going on, to keep up the morale and the courage of the men in the fighting line. Later, in conformity with the requirements of modern tactics, their use in this special direction came to an end. This eclipse gave, as may be supposed, a strong argument to the detractors of military music. The value of this criticism may be shown by giving the importance of music in the field.

In this connection the writer desires to quote the following from a letter written by the chief musician of one of the United

*Newkomm: *Historie de la Musique Militaire*.

States Volunteer regiments stationed, in 1899, at Yloilo, Panay Island, P. I.

There is no doubt about a good band being essential to the army. Our colonel says that he would sooner have a good band than a good hospital corps, if he couldn't have them both.

The other day we were rehearsing when one battalion of the Nineteenth Infantry marched into the barracks. They had been marching over the mountains for fifty days chasing the scattered insurgent bands; some had no shoes and their feet were swollen and bruised; some were sick with fever; all had complaints of one kind or another. Their clothes hung in rags; they had not seen a barber or a razor all the time they were away.

In fact, Coxy's Army and the worst hoboes in New York State would not have been a comparison to them in looks. As soon as I comprehended who and what they were, I stopped the band and struck up "Dixie," and from that "Yankee Doodle," "Whistling Rufus," etc.

If anyone thinks for a moment that a band does no good in the army, he should have been there then; each change of melody was greeted with a yell that could have been heard a mile away, and I never received such an ovation in my musical experience. Men who had limped in sore of foot and sick all over were dancing, hugging each other and yelling like fiends. Many told me later that it was better than all the medicine the doctor gave them.

And, doubtless, many an old officer can tell a similar tale of the moral effect of music on their men and of its action on hearts ready to sink in the inaction of preparations for war.

But the part played by bands does not end here. In the Crimea, musicians went to seek the wounded under the very fire of the enemy, in order to bring them to the nearest field-hospital where their comrades were acting as nurses. After the taking of the Malakoff, the bandmaster of the First Voltigeurs established a field-hospital in some sheds near his regiment. Each shed contained about twenty patients and was placed under the charge of two bandsmen, one of whom was to be present all the time, while the other went for water, provisions, medicines, etc., while awaiting the arrival of the surgeons. At Solferino these same musicians had installed a field-hospital, in a hay-loft near the scene of action, where they received more than two hundred wounded. They laid the sufferers on hurdles covered with hay or straw and thus protected them from painful shocks. At Magenta the band of the First Grenadiers did splendid service under arms.

Doubtless the records of our own American wars would show equally gallant actions on the part of the bandsmen.

The results of the Franco-Prussian War were very sad for French military music. The classification of bandsmen was

abolished. Sax's class at the Conservatory was broken up although he offered still to carry it on for nothing. The result of these steps was to return the bands to a state of affairs similar, in many respects, to what existed before 1845. The bandsmen, deprived of many advantages, had no longer any heart in their work, and the examinations of bandmasters displayed too often a deplorable average of studies. The evil became so pronounced that it ended by impressing even those who paid the least attention to the subject. It was then a question at the War Department of reopening a school for military musicians, bandmasters and assistants, and of re-establishing grades in the bands. There was even talk of restoring the bands of the artillery and cavalry. All sorts of good intentions were in the air, but nothing was done beyond a few insignificant reforms which bore, however, the pompous name of reorganization. This so-called reorganization appeared in the "*Journal Officiel*," of October 20, 1873.

Under the terms of the decree, the two bands of the Republican Guard (the *Garde Républicaine* being formed from the old *Garde Impériale* and *Garde de Paris*) were to retain their organization. The infantry and engineers kept their bands at forty musicians. The cavalry regiments which, since the abolition of their brass bands, had kept only a sergeant trumpeter, a corporal trumpeter, four trumpeters and two students per squadron, were authorized to form bands as a nucleus of ten soldiers to which could be joined the field-musicians. Colonels were allowed to give piston instruments to the trumpeters. Finally the bandmaster had the title of trumpet-major. One month later the number of soldier musicians was reduced to six.

The position of the bandmaster and assistant was left unchanged, but they were forbidden to conduct orchestras or to play in them. Finally, the division of bandsmen into four classes was suppressed, but the principle which caused it was recognized. Bandsmen, after ten years' service, can obtain the pay of corporals independent of the increased pay, proportioned to their ability, which is readily granted to them.

The organization of the French bands has not been changed since 1872, except that the two bands of the Republican Guard have been consolidated, and that twenty-four student-musicians are allowed to each reed band. The brass bands of the cavalry have not been replaced.

If much space has been given to the history of military bands in France, it has been for two reasons: 1st, to show the

vicissitudes through which military music has to pass either for good reasons or because of the whims and notions of a minister of war or a commander-in-chief to whom music may or may not give pleasure; 2d, the writer has been unable to find any work in any other language on the history of military bands. Kastner's "*Manuel Général de Musique Militaire*," and Neukomm's "*Histoire de la Musique Militaire*" are the only books which he has been able, so far, to discover on the subject.

In 1863 the question of military bands was studied with equal care in Belgium by a commission of which Mr. Gevaert, the learned director of the Royal Conservatory of Music at Brussels, was president, and Mr. Victor Mahillon, the well-known author of many works on musical instruments and on acoustics as applied thereto, the custodian of the Museum of the Conservatory of Music at Brussels and head of the firm of Mahillon and Co., the great manufacturers of band instruments, was the secretary. The remainder of the commission was composed of musicians selected from among the most celebrated of the country. This commission reached conclusions sensibly identical with those of the French Commission of 1845.

But nowhere else, within the writer's ken, has the question of military bands been taken up and studied with the logical and musical thoroughness shown by the French Government in 1845.

[TO BE CONTINUED.]



SOME PRESENT AND PROSPECTIVE NEEDS OF THE ARMY MEDICAL SERVICE.

BY COLONEL PHILIP F. HARVEY, U. S. ARMY,
ASSIST. SURGEON GENERAL.



THE ideal army, considered as a whole, may be compared to a living organism made up of many different parts, each having a distinct function yet correlated in action with other organs so that faulty performance of function of any one will disturb the whole. If this comparison is pertinent to the case, it follows that it is to the interest of every part of an army to strive for, and if possible to secure, perfection in all the other parts, since they are mutually dependent and their harmonious interaction is essential to the best achievement of the whole. In other words, that army is best whose various factors are brought to the highest efficiency with a view to combined action.

The Medical Department, although a necessary part of the army, is neither more nor less important than other parts. Its chief function being to diminish or prevent disease among troops, and thereby preserve their efficiency, its utility is in proportion to the degree with which it accomplishes that object.

Its powers may be limited: First, by defects inherent in its personnel; second, by an organization which does not provide a sufficient number of officers and men of proper rank; and third, by external causes within or without the army which operate to defeat or interfere with its work.

1. The rigid system of examination now in vogue for ascertaining the fitness of candidates for admission to the medical corps, their subsequent instruction in medico-military duties at the Army Medical School, and final examination before granting them commissions, reduce to the vanishing point the liability of personal incompetency, either of a physical, mental or moral character of those commissioned. This requisite may therefore be regarded as definitely settled and left out of consideration in this connection.

2. A glance at the history of the Medical Department shows that great defects in its organization are to be observed at almost every stage of its existence, arising from a failure of Congress

to comprehend the importance this element plays in the rôle of military efficiency. For the past few years there has been a numerical insufficiency in the department and a glaring inequality in rank between the medical and the other staff corps, very much to the disadvantage of the former. These defects have had a twofold result, viz., a lowering of the *esprit de corps* and a failure to attract a sufficient number of desirable candidates to fill vacancies. Resignations of some of the best members of the corps have resulted from this cause and there has been a constant and disabling shortage of assistant surgeons ever since the present organization of the department was adopted.

The President, in a recent message to Congress, pertinently remarked: "It is not reasonable to expect successful administration in time of war of a department which lacks a third of the number of officers necessary to perform the medical service in time of peace," and then pithily expressed the reason why the present organization could not be successfully expanded to meet the demands upon it in time of war: "We need men who are not merely doctors, they *must be trained in the military medical service.*" (Italics mine).

As a penalty for failure to enact the necessary legislation for the correction of this state of affairs, he said:

"Unless we now provide with ample forethought for the medical needs of the army and navy, appalling suffering of a preventable kind is sure to occur if the country ever goes to war."

And, unfortunately, that suffering will be among those who are in no way responsible for the failure. In view of the very evident necessity and urgency for the enactment of measures of relief it is but fair to assume that Congress will pass a bill during the present session giving to the Medical Department the necessary increase of personnel and rank to enable it to fully meet all the demands made upon it, at least for the permanent establishment.

3. We will assume the needed increase to have been granted, but there may yet be a failure of the department to accomplish the full measure of success in its legitimate province on account of inability to secure the enforcement of the measures it deems necessary to prevent or diminish disease.

Military necessity is imperative and overrides all other considerations: sanitary details must yield perforce to strategic measures involving forced marches, insufficient food, bad water,

exposure to malarial infection, to other diseases, to heat, cold, wet, etc. The best and most successful military commanders, however, provide in advance, as much as possible, for all contingencies, and recognize the fact that it is equally important to take counsel in advance as to needful measures to best protect the physical efficiency of their troops as to the other agencies they must depend upon for success.

Again, the relation of the medical officer to the military establishment is advisory only. He is not even eligible by law to exercise command except in his own department. Upon the decision, therefore, of the commander must depend the action taken upon sanitary recommendations. The army regulations are now such that under ordinary conditions in times of peace, recommendations that are desirable and practicable are carried out, so no change in this respect is deemed necessary.

But during the early operations of war within or outside of our territorial limits the enforcement of available sanitary measures has been altogether exceptional in the past, and there is no prospect of any improvement if the country should again become involved in war. Enormous sacrifice of life to preventable disease would again be certain during the first period of military operations under present conditions. Military authority must, of course, within legal restrictions, be a one-man power, especially in campaign. But under the ordinary circumstances of war or peace extensive or undue prevalence of preventable disease among troops should be investigated by a court of inquiry and the responsible officer, be he line or staff, be held accountable and punished.

To promote the cause of military sanitation, and to render it capable of achieving its ultimate object, officers of the line should have some knowledge of camp diseases and their prevention to enable them to act intelligently upon sanitary recommendations, and it is gratifying to note that by recent orders all subaltern officers of the line are required to pass an examination in military hygiene prior to promotion.

As an illustration of the mastery over disease gained by the sympathetic co-operation of the commanding general with his sanitary advisors, the stamping out of an epidemic of yellow fever at Santiago, Cuba, by Gen. Leonard Wood may be cited. The instance is a pertinent one, and establishes beyond cavil the moral obligation imposed upon military commanders under similar circumstances. If the application of known expedients of

science can remedy or mitigate one of the direst evils of war, their neglect in time of need savors of barbarism and should not be tolerated by an enlightened and wealthy nation.

There is an abundance of courage among our people, and although they do not court war they do not shrink from it if conditions are such as to demand a resort to arms. Unfortunately, such conditions are liable to arise at any time, and prudence demands a reasonable preparation for them and for their outcome, which may be a war, of what proportions it is impossible to say. The size of the army we should need in such an event would depend upon the strength of our adversary, but it is quite safe to assume that it would be entirely too large to be properly attended by the regular Medical Department. A medical reserve corps could be depended upon only partly to supply the deficiency, and it appears obvious that the medical officers of the State forces must be in great measure relied upon to reinforce the regular department in time of emergency. This being the case, it becomes an interesting inquiry as to what extent they are now fitted for that duty and what measures, if any, should be adopted to train them in military methods so they will be fitted at once to perform the medico-military duties which will devolve upon them in time of actual hostilities.

There is, strictly speaking, no organization of the medical department of the State troops, with few exceptions, but to each regiment are permanently assigned one surgeon and two or more assistant surgeons who constitute a part of the regiment. The appointment of these officers is vested in the governors, and examinations as to qualifications is dispensed with in most of the States. It would appear, therefore, that there is room for reform in this matter.*

It is not thought the importance of this matter is overstated when it is said that it is vital not only to the best interests of the service but to those of the whole country. The interests of the army are obvious, and it requires but a moment's reflection to understand the concern the fathers and mothers of this land must feel for the sanitary care of their soldier sons when exposed to the manifold causes of sickness and injury in the field. The highly important rôle that military hygiene plays in preserving the efficiency of armies has been so frequently set forth

*The organization of the Medical Department of the Militia adopted by the Act of Congress, approved Jan. 21, 1903, known as the Dick Bill, is the same as that now, or which shall hereafter be prescribed for the Regular Army, and becomes effective Jan. 21, 1908.

by printed and spoken word, and by lamentable experience in wars of our own and other countries, that it is hardly necessary to enlarge upon it here. But as bearing directly upon this point, it is necessary to emphasize the fact that an increased efficiency of the medical personnel of the militia in administrative work is highly essential to supplement the work of the regular corps in safeguarding the army in the event of war. There is perhaps no school that can supplant that of actual service and discipline, but a great improvement over present conditions can be brought about by properly directed instruction and careful selection.

Section 16, of General Orders No. 7, Adjutant General's Office, 1903, authorizes the admission of medical officers of the militia to the Army Medical School, Washington, D. C., and General Orders No. 39, War Department, 1905, publishes detailed information relative thereto, and a subsequent order waives the entrance examination. An officer of the militia who becomes a graduate of the school should be required to return to his home and be placed in a position to enable him to give his brother officers the benefit of his experience. Much useful knowledge could thus be disseminated.

Before admitting a candidate to the medical ranks of the militia he should be required to undergo an examination as to his mental, moral and physical fitness for active service. He should also be a citizen of the United States. The standard for the professional examination should be sufficiently high to guarantee the admission of such candidates only as possess the qualifications requisite to a thorough and efficient discharge of their professional duties. He should be able to pass a satisfactory examination in anatomy, physiology, practice of medicine, therapeutics, surgery and hygiene.

If not personally known to the examining board as a man of good moral character, he should be required to submit evidence either of a documentary or oral character establishing that point. He should be physically examined, stripped and rejected if any physical defect is discovered which will disqualify him for the performance of active duty. The physical examination need not be as rigid as it is for the Regular Army, but any disability which would prevent the discharge of duties in the field should be regarded as disqualifying.

After the fitness for service of the candidate has been determined, and he has been commissioned, a most, if not the most, important part of his education as a medical officer remains to

be given him, namely, training in administrative work. He must understand the management and control of military hospitals, the recruitment, instruction and control of the hospital corps, the rendering of returns, reports, etc.; how to obtain supplies; how to manage the ration, and how to do a thousand and one other things required of him in the course of his daily duties and which to be well learned require years of study and experience. Another essential part of a military education is discipline, and it is quite as much needed by the commissioned officer as by the enlisted man. What is meant by discipline is the cultivation of a spirit of subordination, or the habit of obedience to all lawful orders. The officer in command attains his position of authority only through the school of obedience, and he is entitled in turn to the same loyalty and support from his juniors in rank that he gave to his seniors. Without this, organization would be ineffectual and concert of action impossible. This, then, I think is a fundamental part of the training of all medical officers.

Coincident with this should go a course of instruction in administration and customs of the service, hospital corps drill, first aid to and transportation of the sick and wounded, military hygiene, sanitary chemistry, and military medicine and surgery.

The "Army Regulations" and the "Articles of War" should be studied and understood, especially in so far as they relate to the Medical Department; and the enlisted personnel of the hospital corps of the organized militia should be taught the rudiments of first aid and transportation, and the drill, and those having clerical ability should be taught as much as possible about making reports and returns.

A uniform system of blanks, based upon those in use in the army, should be adopted. Also a general supply table especially adapted for use in the field. Maj. S. C. Stanton, surgeon, Illinois National Guard, assigned to First Infantry, Chicago, has prepared a set of blanks and a field supply table for the use of the militia medical service of his State which would answer every purpose.

Examinations from time to time should be held of officers and men undergoing instruction, a record kept thereof and their proficiency reported to the surgeon-general of the State. At the expiration of five years' service as assistant-surgeon in the grade of first lieutenant, the rank of captain should accrue. Promotions to majority should be made according to seniority, sub-

ject to a uniform examination. In case of the failure of a candidate to receive the approval of the examining board on account of professional deficiency, his promotion should be suspended until a subsequent examination six months later shall show him proficient. In the event of a second failure he should be dropped from the rolls. Provision should be made also for dropping an officer who is found disqualified by objectionable moral character or inefficiency.

As medical officers are mounted, it would be well that they should have had some experience in horseback riding. Undoubtedly a large proportion of physicians in civil life, especially outside of cities, already are qualified in this respect, but those who have never ridden horseback, or who lack the necessary experience, should be required to take lessons in equitation.

A matter of the first importance is the national unification of medical instruction for the medical staff of the State troops. A council of the surgeon-generals of the various States should agree upon a uniform scheme of instruction and set of regulations covering administrative work for the entire body of State medical officers.

From all available information it appears that Japan owed her success in her late war in no small degree to her Medical Department. What the outcome might have been had her sanitary service been inefficient we can only surmise. At least in providing liberally for the sanitary service, in adopting a splendid organization, in having a full complement of officers and men well trained in their sanitary and administrative work, and giving to the Medical Department complete autonomy, the Japanese Government added much to her strength and reputation and set an example of enlightened legislation to the world that should influence military legislation of other countries in the future.



WINNING THE LAHM CUP.

BY CAPTAIN C. DeF. CHANDLER, SIGNAL CORPS.



THE Lahm Cup, of which I have the honor to be the first winner, is a trophy offered by the Aero Club of America to promote ballooning as a sport in the United States. This trophy is named for Lieut. Frank P. Lahm, of the Cavalry (now serving a detail in the Signal Corps) in recognition of his winning the first international balloon race from Paris in September, 1906. It was required that the first winner of the Lahm Cup exceed his distance of 402 miles, and this trophy is only retained until another person can exceed the distance made by the holder. The cup may be competed for by any member of the Aero Club of America, or affiliated clubs, making formal entry for enrolment as a competitor, and conforming to the regulations which are necessary to authenticate the distance accomplished. All competition for it must be held at some point in the United States.

Mr. J. C. McCoy, one of the American team in the 1907 International Balloon Race, invited me to serve as his aide in that race; therefore we arranged to make several ascensions together before the race. One trip was made from St. Louis on April 30th, and several from Washington, D.C., during September, 1907. We went to St. Louis some time before the race to make at least one long-distance trip from there—all of our foreign competitors having the advantage and experience of many long-distance balloon voyages and races. It was not advisable to risk Mr. McCoy's fine new balloon "America" before the International Race, and therefore we used Signal Corps balloon No. 10. I filed the required notice with the Aero Club of America as pilot, to compete for the Lahm trophy.

Signal Corps balloon No. 10 has 2200 cubic meters capacity (nearly 78,000 cubic feet). This is the maximum size, and the usual capacity for free balloons used in racing. The rules of the International Aeronautic Federation, however, permit a balloon to be used not to exceed five per cent. more capacity than this, in case the width of seams, or other processes of manu-

facture, have made a slightly larger capacity than the design called for. It is customary to inflate all balloons of this size with pure coal gas (specific gravity .390 to .450); that is, coal gas which passes through purifiers but has none of the heavier hydrocarbons which are usually added to enrich it for illuminating purposes.

The ascension was made from the Rutger Street gas works



SIGNAL CORPS BALLOON, NO. 10.*

in St. Louis at 4.15 P. M., October 17th, in the presence of a large number of our friends and aeronautic enthusiasts, who wished us a pleasant journey, safe return, etc. The afternoon was clear, and a breeze from south-by-west carried us along at a speed of about eighteen miles an hour. For several hours we did not exceed an altitude of 1500 feet, and thoroughly enjoyed

*Trial trip. Ascension Washington, June 4, 1907. Landed near Harrisburg, Pa.

the view of the well-tilled farm land of Illinois until after sunset, which occurred about one hour after our start.

The attention of one person in a balloon is occupied all the time in observing the instruments showing the altitude and movement of the balloon, and throwing out sand ballast when required to compensate for decreases in lifting power of the gas; this is due to lowering of the temperature and some leakage.

In addition to enjoying the view from a balloon there is always an interesting and important occupation for the second person in the basket following the course of the balloon on maps which are carried. The position is verified by comparing the map with the towns, rivers, railroads, small lakes, etc., seen below. Both Mr. McCoy and I hold certificates as aeronautic pilots, and therefore alternated standing watch as pilot and in map work.

At 5.40 we were over Edwardsville, Ill., at an altitude of about 1500 feet. Here we found by observation that the wind had changed direction slightly, now carrying us toward the northeast. The usual method of determining the course is to note some isolated tree or building directly under the balloon, and after passing some distance a sight is taken back toward the same object, holding a small compass in the hand.

Later the balloon was permitted to travel lower, and we obtained considerable amusement by using a megaphone and talking to the farmers. Aeronauts do not incur the hostility of farmers, as do automobilists, and we received many invitations shouted, "Come down to supper." At all times, when low enough to converse with people on the ground, we were hailed with the universal inquiry of "Where are you going?" the answer to which, of course, we did not know ourselves.

We continued along later in the evening without unusual incident, passing to the south of and seeing the lights of Vandalia and Effingham, Ill. We crossed the Wabash River just at midnight.

A balloon passing low at night seems to be discovered first by chickens, and their fright results in a noise which usually brings forth the farmer, thinking someone is robbing his chicken house. On one occasion of this kind we shouted to a farmer about 1.30 A. M., who came out with a lantern, asking him what county that was. He replied, "Hendricks." This confirmed the position which we had estimated from following the map, and

about a half-hour later we sighted the lights of Indianapolis not far to the south of us.

Various methods have been proposed and used for measuring the speed of free ballons, but the most simple and accurate method, requiring no special instruments, is to pay careful attention to map work and note the time of passing over a town which can be positively identified. After one hour or so the time is noted when passing over another town; then, by measuring the distance on the map the elapsed time gives at once the velocity.

After passing Indianapolis the direction of the wind changed, making our course east-southeast, which direction continued until morning. The entire night had been unusually warm for this time of the year, and the heavy overcoats which we brought along were not required.

Every six hours, day and night, we enjoyed a hot meal. Hot foods were prepared by using self-heating cans. This is a double can having lime between the two parts. By punching small holes and putting water on the lime, the chemical action soon heats the food in the inner can. We were also provided with vacuum bottles, which kept tea and coffee quite hot. An after-dinner smoke is not customary in a balloon on account of the danger of igniting escaping gas and causing an embarrassing explosion.

About six o'clock in the morning we were over Clinton County, Ohio, and not far from Hillsboro. Usually the guide rope of a balloon hangs vertically, but at this particular time the difference in the speed of the air currents encountered was sufficiently remarkable to be reported. The end of the guide rope, 300 feet below the balloon, was at some times fifteen or more feet back from the normal vertical position.

Hills and higher lands came in sight, and it was necessary to ascend. The balloon crossed the Ohio River near Gallipolis, traveling in a southeasterly direction straight toward Charleston, W. Va. As we had already exceeded the required distance of 402 miles, we decided to land at Charleston. Before reaching there, however, the wind changed direction and carried the balloon eastward. We tried various altitudes, hoping to find a current in which we might continue on to Charleston, but without avail; the easterly course was carrying us farther into the mountains of West Virginia, so it was decided to land without

further delay. The valve was held open and the balloon descended 6000 feet in about ten minutes.

In this mountainous region open fields were scarce, so the landing was made in the first one that came on our course. The wind was carrying us at the rate of about twenty miles an hour, but as soon as the balloon descended among the hills and trees this was not noticed. The balloon car struck the hillside, after which the balloon bounced up again a short distance and came in contact with a lone tree. It revolved and rolled off to one side without any inconvenience. After passing this tree the rip cord was pulled, which tears out a section of the balloon about six inches wide and twelve feet long, releasing the gas through this large opening very quickly. Although the hillside was quite steep, the landing was so easily made that the anchor was not required.

The descent was made at 1.30 P. M., October 18th, having been in the air twenty hours and fifteen minutes. Our landing-place was about three miles northeast of Walton post-office, in Roane County, W. Va. The distance from St. Louis, by computation, being 473.09 statute miles. The distance accomplished by a free balloon is always measured from the starting to the landing points direct, and the actual course covered does not count. Official measurements of distances are usually made by taking the exact latitude and longitude of the starting and landing points and computing the distance mathematically by spherical trigonometry.

Piloting a balloon through the night and landing safely we found was a very simple matter compared to getting a 1200-pound balloon some fourteen miles to the nearest railroad station. I thought that I had experienced very poor roads before, but these so-called roads in the mountains of West Virginia are beyond description. A considerable portion of the road was down and up the beds of streams, full of rocks and boulders. This rough experience with bad roads served to emphasize by contrast the advantages and ease of traveling by balloon.

As is usually the case on landing, all the people in the vicinity, including women and children, came to see the balloon. A half-dozen farmers assisted us in packing and loading the balloon. We were fortunate in securing a wagon and team of horses which had the reputation of being the best in that county, but as a wagon could travel over those roads only in daylight,

our teamster did not arrive at Clendennin station until the afternoon of the next day.

Before leaving St. Louis our friends were much concerned as to whether we could make this preliminary trip east and return in time for the International Race, October 21st. This is the reason the balloon voyage was not continued much beyond the required 402 miles. It was very important that we lose no time getting back to St. Louis, but most of the farmers who had assisted us advised against trying to reach Clendennin the night of the 18th. In ignorance of the bad roads to be encountered, we insisted upon going. That strenuous night ride left more vivid impression than any incidents of the balloon voyage.

We arrived back in St. Louis the morning of October 20th, which was just in time to allow Mr. McCoy to supervise the spreading of his racing balloon at Forest Park the same afternoon.

One of the first questions which I am usually asked by persons seeking information about balloons is, "What is the sensation of going up in a balloon?" I will anticipate this same inquiry of the readers of this article, and state for their information that in a free balloon I have not noticed any peculiar physical sensation which can be described. It would be like trying to describe standing still as a sensation. The impression, on ascending in a free balloon, is more an optical illusion; the ascent is so slow and gentle that it cannot be felt, and one has the impression that the balloon is motionless and the earth gradually dropping away. All the noises and shouts of the people become fainter and die out. As the altitude increases hills and valleys are not apparent and the earth seems flat, like a beautiful colored map, showing cultivated fields, forests, etc. The greater part of the time a balloon is moving either up or down, but the motion is not apparent, and it requires a statoscope to indicate whether the balloon is ascending or descending. If a considerable change of altitude is made in a short time, the difference in air pressure may be felt on the ear drums. In descending, even quite rapidly, I have never had any sensation of falling.

Many persons have offered the advice that free balloons would be of no value to an army in time of war, and intimating that the present use of them is simply time wasted. This may be an appropriate place to state that the principal object in free ballooning as now practiced by the Signal Corps is to give officers

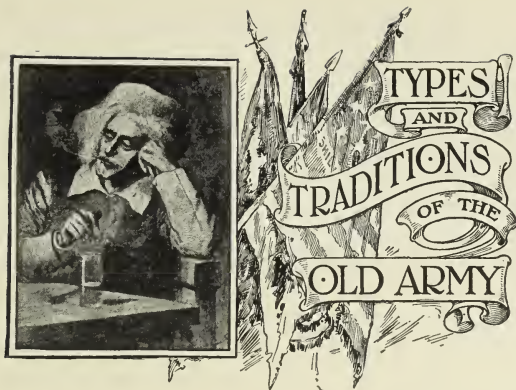
this elementary instruction, which is of great value, because a captive balloon or a dirigible balloon may, in case of accident, become a free balloon. History also records how the French made and sent up from Paris sixty-four balloons during the siege of 1870-1871. These carried a total of 164 persons, 381 carrier pigeons and more than eleven tons of mail. Only six were captured by the Germans and two lost at sea.

NOTE.—The tailpiece is a reduced copy of a *bas relief* by J. E. Kelly of General Fitz John Porter in Professor Lowe's balloon at headquarters Army of the Potomac July, 1862. "General Porter said that when he got into the balloon the rope snapped and he was carried over the rebel fortifications. Having climbed up and caught the valve rope, he descended into another current which carried him back into our lines. He described his costume in detail, and gave me his field-glass to work from."—[J. E. Kelly.]





LIEUT. THOMAS W. SWEENEY,
First New York Volunteers (1847).



NARRATIVE OF ARMY SERVICE IN THE MEXICAN WAR AND ON THE PLAINS, 1846-1853.

BY LIEUTENANT THOMAS W. SWEENY, SECOND INFANTRY.
LATE BRIGADIER-GENERAL, UNITED STATES ARMY.*

I. THE MEXICAN WAR.

AT the time of the outbreak of the Mexican War, in 1846, I was in the employ of Messrs. Gould, Banks & Company, of New York City, at that time the leading law-book publishers of the United States.

I had been, for nearly ten years, connected with the militia companies of the city, being then a member of the Independent Tompkins Blues, commanded by Captain Charles Baxter.

Soon after the declaration of war, Congress authorized the raising of several volunteer regiments to serve during the war. I immediately volunteered my services, and was elected a second lieutenant in the "First Regiment of New York Volunteers," of which Ward B. Burnett, a graduate of West Point, was commissioned colonel, and Charles Baxter, the former commander of the Independent Tompkins Blues, lieutenant-colonel.

On the 11th of December, 1846, I was duly commissioned second lieutenant by the governor, Silas Wright, "to rank as such from the

*Edited by his son, WILLIAM M. SWEENY.

NOTE.—The following pages comprise a narrative of military service during the war with Mexico and in California, compiled from the journals of Lieutenant Sweeny, Second United States Infantry.

Thomas William Sweeny was born in Ireland, December 25, 1820, and was brought to the United States in 1832, settling in New York City, where after finishing his education in the city schools, he was apprenticed to the printing business.

At the outbreak of the Mexican War he became second lieutenant in the First New York Volunteers, and participated in the campaign under Gen. Winfield Scott from the siege of Vera Cruz to the storming of Churubusco, where he received wounds that necessitated the amputation of his right arm.

He was commissioned second lieutenant, Second United States Infantry, March 3, 1848, and served with his regiment en route to and in California

fourth day of December, 1846." The next day I appeared before Colonel Burnett and took and subscribed to the oath of allegiance.

On the 8th of January, 1847, our regiment, to the number of about eight hundred men, sailed from New York for the seat of war.

The voyage passed without any incidents occurring worthy of mention, and we reached the rendezvous, at the Island of Lobos, about two miles from Vera Cruz, toward the end of February. Here we were joined by the First and Second Pennsylvania, the South Carolina, two-thirds of the Louisiana and detachments from the Massachusetts regiments of volunteers. One of the principal objects in landing at Lobos was to give the new regiments an opportunity for drilling, prior to the descent upon the Mexican coast.

During the siege of Vera Cruz, in March, 1847, our regiment was attached to the division of General Worth, and occupied a position immediately southeast of the city, which was considered the front of the attack. I was fortunate enough to escape being wounded, but, owing to the excessive heat, was prostrated for a time by an attack of sun-stroke.

After the bombardment of Vera Cruz, our regiment, with the others, was marched into the interior.

It was at Cerro Gordo—April 17-18, 1847—that I first practically "smelt powder." My company—A—and one other were detached to support Capt. Francis Taylor's battery in storming the first height. We cut a road through the chaparral for the artillery, to the left of the enemy's position, in order to turn it. After reaching the base of the hill, and winding some distance around it, we halted for orders. Here we were exposed to a raking fire from the Mexican batteries. At this time the appearance of our company was as follows: Lieutenant Miller was lying off quite unconcerned; I sat a little to his left, with my knees drawn up, smoking an old clay pipe; Private David Doremus (afterward second lieutenant) was leaning against a tree; and the men scattered about in every direction: some lying, some in a sitting posture, cracking their jokes about the manner in which the balls were peppering among

to 1853. His subsequent appointments in the regular service were as follows: First lieutenant, Second Infantry, June 11, 1851; captain, Second Infantry, January 19, 1861; major, Sixteenth Infantry, October 20, 1863; retired with the rank of brigadier-general May 11, 1870, on account of disability resulting from "loss of right arm and wounds in the line of duty."

Lieutenant Sweeny was stationed at New York City on recruiting service from March to September, 1854; at Carlisle Barracks, Pa., and in Nebraska Territory, at Forts Pierre and Randall, to June, 1858, being engaged in the Sioux Campaign of 1855-1856, as aide to Gen. William S. Harney; on recruiting service at New York City to June, 1860; at Jefferson Barracks and St. Louis Arsenal, Mo., to June, 1861; brigadier-general, Missouri Volunteers, May, 1861; in action at Forsyth and capture of Camp Jackson, Mo., May-July, 1861; severely wounded at the Battle of Wilson's Creek, Mo., August, 1861; on sick leave to October, 1861; on staff duty, Department of the Missouri, October, 1861, to March, 1862; colonel, Fifty-second Illinois Volunteers, January, 1862; commanding Third Brigade, Second Division, Army of the Tennessee, to May, 1862; at the Battle of Shiloh, April 6, 1862 (severely wounded); commanding First Brigade, Second Division, Army of the Tennessee, to July 25, 1863; engaged in the Battle of Iuka and siege of

them. A round shot passed within a foot of my head, and struck the tree against which Doremus leaned, and fell between his legs. He picked up the ball, and tossing it to me, said, "Lieutenant, feel how thundering hot that is!" A private was sitting with his musket erect between his legs, and had it knocked several feet from him by a grape shot. Indeed, we lay there under a perfect shower of balls.

After a severe skirmish, with the loss of two men of our company, the first height was carried.

During the night of the 17th we were ordered to drag the artillery and ammunition to the top of the hill, a very laborious work, but it was accomplished by three o'clock on the morning of the 18th. Although not obliged to do so, I carried balls with the men, in order to encourage them in their arduous work. So thoroughly broken down were some of the men on its completion that they dropped where they stood, and in the cold night air enjoyed a sound repose for a couple of hours. I lay down between two men, who, as I supposed, were members of my company, but on awakening in the morning, I found that they were dead Mexicans, killed in taking the heights the evening before.

After the Battle of Cerro Gordo, we pushed onward toward Jalapa, where we remained for a short time, when we again resumed our march across the plains of Perote and entered the city of Puebla, where we remained about two months, awaiting reinforcements. Leaving a small garrison at Puebla, we resumed our march toward the City of Mexico on the 8th of August. Moving across the Pedregal, an almost impassable tract of country, we encamped at Buena Vista on the 11th, and on the 19th of August, arrived at the village of San Augustin. About three o'clock in the afternoon we were ordered to the support of Generals Pillow and Twiggs, who had left San Augustin in the morning with their troops—the Third and Second Division of Regulars—and were then at San Geronimo (or Contreras). We reached Contreras at midnight, in a heavy downfall of rain. Every shelter was occupied, and our regi-

Corinth, September-October, 1862 (wounded); brigadier-general, United States Volunteers, November 29, 1862; commanding Second Division, Sixteenth Corps, Army of the Tennessee, September, 1863, to July, 1864; engaged in the Atlanta Campaign, participating in the Battles of Resaca, Dallas, Kenesaw Mountain, actions of Ruff's Mills, Rome Cross Roads, Nickajack Creek, Lay's Ferry, etc., and Battle of Atlanta, July 22, 1864; honorably mustered out as brigadier-general of volunteers August, 1865; commanding posts of Nashville, Tenn., and Augusta and Atlanta, Ga., to March, 1869; awaiting orders, April, 1869; retired as brigadier-general, United States Army, May 11, 1870.

General Sweeny was presented a sword by the City of Brooklyn for his services during the Rebellion.

After retirement from active service General Sweeny resided in New York City and vicinity, and died at Astoria, Long Island, April 10, 1892. He was twice married. A widow, three sons and two daughters survive him.

Astoria, Long Island,
September 5, 1903.

WILLIAM M. SWEENY.

ment was compelled to pass the night under arms, on the muddy ground, without fires or any protection from the fury of a tropic storm.

When daylight broke, we began making fires in order to warm and dry ourselves, and I then perceived for the first time that we had bivouacked in an orchard of young olive trees. I was kneeling on the ground, endeavoring, with the aid of my cap, to start a fire into a blaze, which I finally succeeded in doing, after the exercise of a great deal of patience and not a little exertion. The smoke from our fires was slowly ascending, in thin blue streaks, through the tree tops, and penetrating the mist, which was beginning to dispel, when suddenly there came a violent rush of air, followed by a crashing among the trees. Seizing my cap, I sprang to my feet, and shouted to my men: "This is no place to camp, men. They are firing upon us with canister!" Such, indeed, was the case. Being unaware of the close proximity of the enemy, we had inadvertently halted within a short distance of the town, and within close range of the Mexican batteries—a fact which they were not long in discovering, and taking advantage of. Fortunately, no one was injured, and we withdrew to a safe distance and continued our preparations for breakfast. About sunrise, General Smith, who commanded, commenced the attack. While General Smith was storming the works, the New York and South Carolina regiments, of General Shields' brigade, were ordered to the rear of the church, to cut off the retreat of the Mexicans. In this movement we were very successful, capturing over three hundred prisoners, among them being a general and several officers of lesser rank, besides which we took about two hundred stand of arms, lances, etc.

At about 9 o'clock A. M., we were aroused to advance toward the City of Mexico. Our regiment, on leaving the village of Contreras, numbered about three hundred officers and men—Company D, of the regiment, with about fifty men of other companies, having been left behind in charge of the prisoners.

Passing through San Angel, we reached the village of Churubusco, where we found the Mexicans strongly intrenched behind two field works. The Second Division of Regulars soon became engaged, and our brigade—the New York and South Carolina regiments, under General Shields—was ordered to countermarch and go around by the hacienda of Los Portales; and attack the enemy in flank, the road to the village, which passed over the Rio Churubusco, being strongly fortified by the Mexicans, who resisted all attempts to dislodge them. After marching nearly three miles, over marshes and fields, we reached the enemy's right and rear at Los Portales. While our line was being forced to charge the breastworks and hacienda, the enemy endeavored to turn our left. We advanced under a tremendous fire, from the effects of which Colonel Burnett was disabled by a musket ball in the left leg, and was compelled to turn over the command of the regiment to Lieutenant-Colonel Baxter.

While leading my men into action, I was struck in the groin by a

spent ball. It passed through three thicknesses of clothing, and produced a painful, though not dangerous wound. Although advised to retire, I refused, so long as I was able to stand. Advancing farther, in a few minutes I was again wounded, receiving a ball from an escopette in my right arm above the elbow. The ball passed completely through the arm, but for a few moments I did not know that I had again been wounded until I felt a stinging sensation in my arm, as if I had been struck smartly by a rattan. Looking down, I perceived a hole in my sleeve, slightly tinged with blood; the next instant my arm dropped powerless to my side, a sickening sensation came over me; I staggered and would have fallen had not a brother officer—Lieutenant Potter—seeing me falter, sprang forward and caught me in his arms as I was about to fall.

It was now about 4 o'clock in the afternoon, and the battle was raging furiously. General Scott, fearing that Shields would be overwhelmed by the enemy, sent Capt. Robert E. Lee, of the Engineer Corps, down to see if reinforcements were needed. Lee returned and reported that they were, whereupon General Scott ordered forward the only troops that he could spare at the time, a regiment of mounted rifles, which had been held in reserve, and was commanded by Col. E. V. Sumner.

As we were passing to the rear, with my arm thrown across Potter's shoulder for support, we met these troops with Sumner at their head, galloping rapidly toward the scene of action. We had stepped to one side of the road, and as they dashed by, I cried out, "Go ahead, boys, you are needed in front!" Colonel Sumner acknowledged the greeting with a wave of his sword, and they swept by.

Passing onward to the rear, we had to cross a field that had been recently plowed. As we approached the opposite side of the field, we perceived an officer sitting on the ground, in one of the furrows, with his back toward us, and who was in the act of drinking from a flask. Being very weak and exhausted from loss of blood, I requested Lieutenant Potter to go to the officer and ask him if he would let me have a drink from his flask. Going over to him, Potter said:

"Sir, will you be kind enough to give a wounded officer a sup from your flask?"

Without replying or turning his head, the officer handed the flask over his shoulder to Potter. After I had drunk, Potter returned the flask, and as he did so he observed that the officer wore the shoulder-straps of a brigadier-general. His curiosity was piqued to learn who it was, and he glanced askance at the officer's face but failed to recognize him. As we passed on, Potter communicated to me what he had observed, and I remarked, indignantly:

"I wonder what he can be doing here, in this position, while the fighting is going on. This is no place for an officer to be at this time."

We both felt very indignant over this apparent exhibition of cowardice by an officer of such high rank, and I declared my intention of

reporting the matter at headquarters; but upon sober second thought, I decided that it would be better to wait until we saw General Scott's morning report, and see if any mention would be made of this officer's anomalous position. I was very glad afterward that I had decided so to do, for the following morning's report of the commander-in-chief accounted for the absence from the field of Brig.-Gen. Franklin Pierce (the officer we had met) owing to disabilities resulting from a fall from his horse.

I met General Pierce afterward, at the White House, when he was President, and on relating the incident he said that he remembered it distinctly, and that he had often wondered who the wounded officer was, but had never, until then, been able to learn.

I was assisted to a temporary hospital in the beautiful little village of San Augustin. The doctor pronounced my wound a serious one, and found that amputation would be necessary in order to save my life. Lieut. Francis E. Pinto, of my regiment, supported my shoulders during the operation, which was a very painful one, no anesthetics being then in use in our army.

Being thus rendered *hors de combat*, I took no part in the storming of Chapultepec, where my regiment fought with great gallantry. Lieutenant-Colonel Baxter fell mortally wounded on the 13th of September, and Capt. Abraham Van Olinda, "an estimable and gallant officer," was killed at the head of his company.

I entered the City of Mexico in an ambulance, and was conveyed to a hospital in the "Halls of the Montezumas." Here I occupied the same room with Colonel Burnett, who had fallen early at Churubusco, severely wounded; while in an adjoining room was Lieutenant-Colonel Baxter.

In spite of the doctor's efforts, Baxter gradually grew worse, and began to sink rapidly, till on the night of the 18th of September it became apparent that the end was not far off. Burnett and I, although in the adjoining room, were too badly wounded to permit our seeing him and bidding him a last farewell.

On the night of his death Baxter awoke from a doze, and seeing the doctor writing, asked: "Mac—Doc—what are you doing?"

The doctor answered that he was writing to his father.

"Then say to him that the New York Regiment was there and that I fell where I should have fallen, at the head of it."

A few moments later he lay back in the doctor's arms and passed peacefully away.

It was some time before I became convalescent, and the confinement weakened me very much.

Colonel Burnett became steadily worse until lock-jaw set in, and his death was daily expected. It was with great difficulty that he could receive food, and he spoke only with the greatest effort. The doctor informed Burnett's comrades of his patient's alarming condition, but delayed telling Burnett for fear his end might be unduly hastened. But

so certain were they that he could not recover, that orders were given the carpenter to prepare a coffin for him. Unfortunately, the work was carried on within hearing distance, and, one day, the weather being extremely warm, Burnett's room door was left open and the sounds of the hammering reached his ears and annoyed him. It happened that no one was near him at the time except a little drummer-boy who was passing through the room. Calling the lad over to him, Burnett inquired:

"See here, my boy, what is that hammering going on?"

"Please, sir," replied the boy innocently, "they're making a coffin."

"Making a coffin, eh!" muttered Burnett musingly, and a horrid suspicion flashed across his mind. "Whom are they making it for?"

"Please, sir," again replied the lad, "they're making it for *you*."

The next time the doctor came in he saw by the expression on Colonel Burnett's face that something was up. Burnett eyed him for a while, and then quietly and drily remarked:

"So I understand, doctor, that you are having a coffin made for me?"

The doctor was almost nonplussed for a moment, but seeing by Burnett's grim manner that it would not do to deceive him longer, replied:

"Well, colonel, it will be useless to withhold the truth from you any longer. They *are* making your coffin, and I may as well tell you that if you wish to send home any messages to your friends and relatives, you had better make preparations to do so at once, as you cannot possibly live much longer."

"So you think that I will die, do you, doctor?" remarked Burnett coolly.

"Yes."

"Well, doctor," exclaimed Burnett, from between his closed teeth, "I'll be d——d if I will!"

He recovered, and lived for many years afterward.

As soon as the wounded had recovered sufficiently, a convoy started for the coast under the command of Colonel Harney, of the Dragoons. It was expected that our column would be attacked on the route, and every precaution was taken to give the enemy a warm reception. Even the wounded in the ambulances slept with revolvers under pillows, as it was feared, with good reason, that the Mexicans would not hesitate to attack even the sick and disabled. Fortunately, however, they were not called upon to use them. The rear guard, it is true, was attacked several times, in the hope of cutting them off from the main body, but each time the enemy was repulsed with such severe loss that they finally desisted in their attempts.

Whenever we reached a village on our line of march there was a general rush to obtain any fresh provisions that could be had. On one of these occasions a member of the New York Regiment, a sergeant-major named Lynch, was among the crowd. As he was pushing his way to the front, regardless of whom he was discommoding, the person

in his immediate rear was unintentionally wedged against him. Turning around and eyeing the offender, Lynch sternly asked:

"What do you mean, sir, by pushing people about so? Do you know who I am, sir? I am the *Sergeant-Major of the New York Regiment*."

The offender, who was a small man, and who was in undress uniform, without even shoulder-straps to indicate his rank, replied, with affected meekness and awe:

"Oh, I beg your pardon. I was not aware of that, indeed. I am only a *Major of Regulars*, myself."

This rejoinder caused a general laugh from those who overheard the dialogue, but in which the "*Sergeant-Major of the New York Regiment*, sir," did not join.

On reaching the village of Rio Frio, a small hamlet situated at a high elevation on the side of the volcanic mountain Popocatepetl, Colonel Harney was informed that the Mexicans had blockaded the road by felling trees across it, for some distance beyond the village. When informed of this Harney was enraged. He at once sent for the alcalde and told him, through an interpreter, that if the obstructions were not removed by the time they resumed the march in the morning he would hang him (the alcalde) and his subordinates to the nearest trees. The alcalde went away apparently deeply impressed, and the next morning, when the march began, there was hardly a stick to be found to obstruct our way, and the remainder of the journey to the coast was made without further molestation.

Our voyage across the Gulf to New Orleans, though not of long duration, was very rough, and Colonel Harney, who was on board, suffered a violent attack of *mal de mer*. I observed him one morning, leaning over the rail, looking the picture of human misery. As I approached him I heard him give voice to his feelings as follows:

"Talk about the 'beautiful sea,' and 'a life on the ocean wave,' I don't believe—ugh!—that the d—d fools who wrote—ugh!—those songs were ever—ugh!—at sea in their lives!"

As the transport approached New Orleans as many of the wounded officers as were able to do so crowded on deck to obtain a first glimpse of land. Among them was Major Dimmick, of the Artillery, who peered eagerly over the rail, but in the faint morning light could discern nothing more tangible in the shape of terra firma except here and there little hillocks of mud pushing up through the water. After contemplating this inspiring sight for some time, in silence, Dimmick turned to the other officers and remarked, pensively, "Well, gentlemen, I suppose we must call this *our native land*."

Our arrival at New Orleans was the occasion of great rejoicing. Many who had been given up as killed returned to their friends and families, and the whole city was in gala dress to receive us. The citizens were in a furore of excitement, each vying with his neighbor as to who should show us the most honor. Balls, receptions and enter-

tainments were gotten up for our amusement, and had not our wounds prevented us from participating in many of the entertainments, we should have been loath to depart.

After a short sojourn in New Orleans the wounded officers of my regiment proceeded by rail to Washington, and thence to Jersey City, where we arrived on the evening of the 16th of December, 1847, and were there met by a deputation from the Baxter Blues, who conducted us to New York City, where a large number of our friends and relatives had assembled at the Astor House to greet us.

I was the recipient of much kind attention from my fellow-citizens; was given a reception ball at Castle Garden and presented a medal by the Corporation of New York. Subsequently, I was made captain by brevet by the Governor of the State.

Upon the recommendation of Gen. Winfield Scott, who called the attention of the President to what he was pleased to term my "gallant conduct during the War with Mexico," I was commissioned a second lieutenant in the Second United States Infantry, to date from the 3d of March, 1848.

I was stationed at Fort Columbus, Governors Island, New York Harbor, from March to July, 1848, when I was ordered to join my regiment at Jefferson Barracks, Missouri.

While stationed at Jefferson Barracks I was the recipient of a present of a parcel of *left-hand* kid gloves, sent me by Brevet-Colonel Loring, of the Mounted Rifles, who had lost his *left* arm at the fight at the Belen Gate, City of Mexico. This unique gift was accompanied by the following note from Colonel Loring:

My dear Sweeney
I send you, for your
acceptance a band of "kidds".
Pray receive them and wear them
for old acquaintance sake -

Life Camp
August 7th 48.

I truly your
friend
H. H. Loring

SIXTY YEARS AFTER.

OFFICIAL INSTALLATION OF THE BATTLE FLAGS OF THE FIRST REGIMENT NEW YORK VOLUNTEER INFANTRY, COL. WARD B. BURNETT, COMMANDING (BORNE BY THAT REGIMENT IN THE MEXICAN WAR FROM THE SIEGE OF VERA CRUZ TO THE CAPTURE OF THE CITY OF MEXICO) IN THE POST CHAPEL OF ST. CORNELIUS THE CENTURION, GOVERNORS ISLAND, NEW YORK HARBOR, NOVEMBER 17, 1907, REV. EDMUND BANKS SMITH, D.D., CHAPLAIN.

The City of New York, on October 1, 1907, by unanimous resolution of the Board of Aldermen, authorized the transfer of these battle-flags to the United States military authorities at Governors Island. The veterans of the Mexican War with the colors were met at the boat landing by the general commanding the department and staff and officers of the Twelfth United States Infantry, and were escorted to the chapel by the uniformed detachment of the Veteran Corps of Artillery of the State of New York.

The colors were carried by the following-named veterans of the Mexican War:

National Color: First Sergt. J. R. Riley, First New York Volunteers.

Regimental Color: Sergt. C. H. Farrell, First New York Volunteers.

Battle Flag: Private J. Dick, First New York Volunteers.

Regimental Guidon: Private J. Butterfield, Third United States Infantry.

Regimental Guidon: Musician J. P. Eckweiller, First United States Artillery.

The colors were received and saluted at the west door of the chapel, and in the presence of a large congregation, including representatives of the army, navy, National Guard, Board of Aldermen, and various patriotic societies, were hung upon the walls of the chapel.

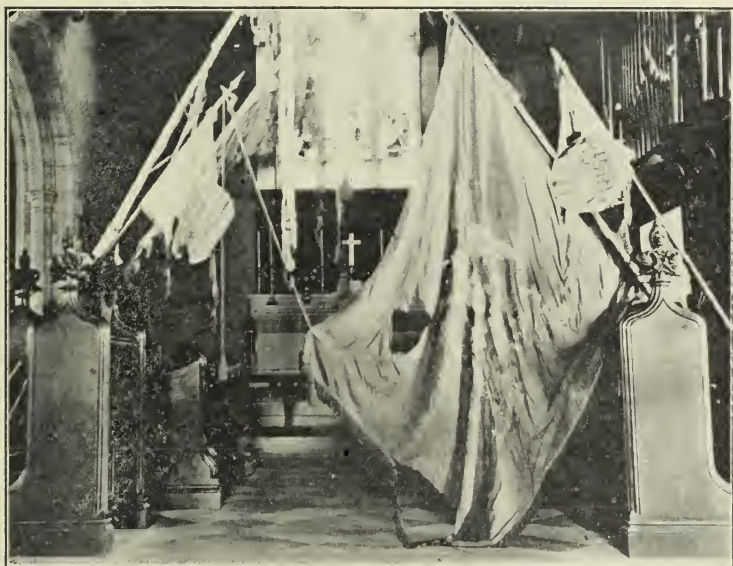
The Hon. Asa Bird Gardiner, L.L.D., L.H.D., made the presentation on behalf of the City of New York.

The acceptance was made by Maj.-Gen. Frederick D. Grant, United States Army, commanding the Department of the East, and the ceremony was followed by an address by the Rev. C. C. Pierce, D.D., chaplain U. S. A., and an elaborate musical service under the direction of Arthur F. Halpin, organist and choirmaster.

HISTORY OF THE COLORS OF THE FIRST NEW YORK REGIMENT—MEXICAN WAR.

The First Regiment of New York Volunteers in the Mexican War was presented with a stand of colors on January 8, 1847, by the City of New York. The colonel of the regiment, Ward B. Burnett, received the colors personally; part of the regiment having sailed for Mexico before the date of presentation. The flags were received by the regiment when the first parade took place after the presentation, on the Mexican Island of Lobos about sixty miles north of Vera Cruz where the fleet containing the army assembled. The officers of the regiment were called to the front and center, where they formed a circle about the colors. Each officer placed his left hand on one of the staffs, raised his right hand, and took a solemn oath under the direction of Colonel Burnett to protect the flags with his life blood. The colors consisted of two flags and two guide colors. One the national flag and the other

a red flag with the coat of arms of the City of New York on one side and the coat of arms of the State on the other. The red flag was the first over the inner wall of the Castle of Chapultepec, on the morning of September 13, 1847. Color Sergt. Hipolite Danderville carried the red flag. Orderly-Sergt. Robert M. Harper, of Company D, supported him on one side and First-Lieut. Francis E. Pinto supported him on the other. All went over the wall together. The regiment took an active part in the siege and capture of Vera Cruz, the storming of Cerro Gordo Pass, the taking of the City of Puebla, the Battle of Contreras, and Churubusco where Color-Sergeant Romein was killed, the storming of the Castle of Chapultepec, where Color Guide Zimmerman was killed inside of the inner wall of the castle, and the capture of the City of Mexico. The regiment belonged to the First Division that entered the city at daybreak of the morning of September 14, 1847.



FLAGS OF THE FIRST NEW YORK VOLUNTEERS (1847).



THE NEW GOVERNORS ISLAND.

FACING this page is a reduced copy of the latest plan, approved by the Secretary of War, of the contemplated improvement on Governors Island, the enlargement of which is in progress and which is destined to be the permanent home of the Military Service Institution of the United States.

From the Sunday edition of the *New York Times* we take the following extracts:

It is almost a certainty that ten years hence there will be in New York Harbor the finest military post not only in this country, but in the whole world. This great post will, of course, be on Governors Island, but it will be on an island nearly three times as large as the present one, and it will be the busiest place in the entire American military establishment.

One hundred and one acres are being added to the old island, and eighteen months hence two-thirds of this reclamation will be completed. Eighteen months later on, it is estimated, the reclamation will be completed, and the island will be ready for the Quartermaster's Department, the department that will be in charge of the erection of new buildings, the laying out of the parks, etc.

Congress has appropriated \$1,100,000 for the building of the seawall and the extension of the island. * * * The money for the docking improvements has also been appropriated, and this work is now well under way, but as yet there has been no appropriation for the construction of the new buildings, and every building, except four now on Governors Island, will be new when the Governors Island of ten years hence is complete and ready for business.

The plans for this wonderful improvement were drawn by McKim, Mead & White, of New York City, in accordance with the requirements of a Board of Officers. * * * This newer Governors Island will be as much greater in every respect, when compared to the Governors Island of to-day, as is the present island when compared to the modest establishment which Capt. James Duncan, of the navy, described to Governor Clinton in a letter written on board the *Centurion* in December, 1783.

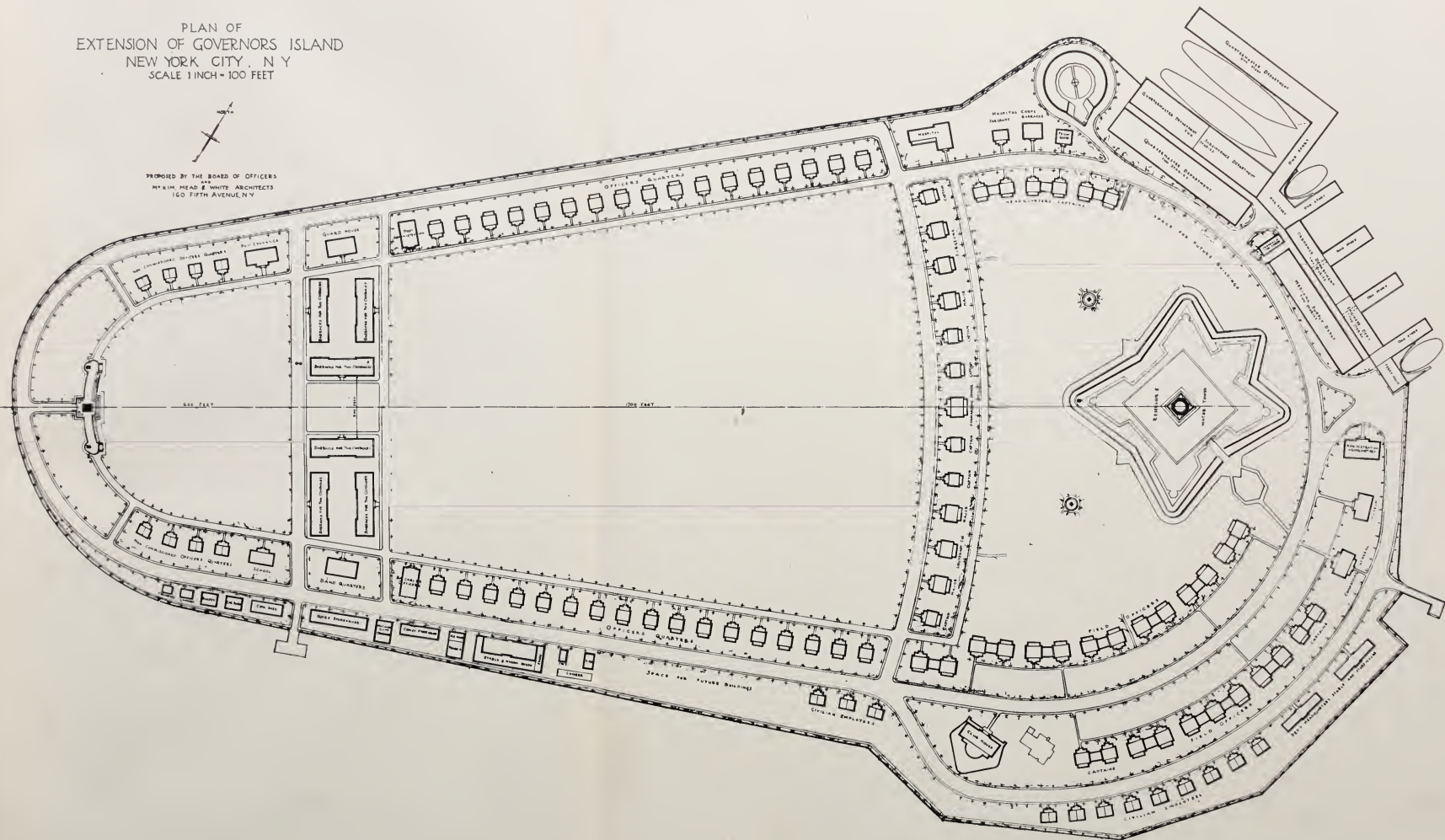
The buildings on Governors Island at that time, according to Captain Duncan, were a wharf, a well eighteen feet deep, with pump, etc.; the captain's kitchen, the captain's cellar, a barn for cattle, the gardener's house, the hospital kitchen, the hospital well, the captain's well, the guard-house, the convalescents' hospital, the captain's barrack, the lieutenant's barrack, the lieutenant's kitchen and the summer-house. * * *

"Historic New York" also says that before the days of Clinton, back in the seventeenth century—in June, 1637, to be exact—what is now Governors Island was bought from the Indians, who received in exchange for it "an ax-



PLAN OF
EXTENSION OF GOVERNORS ISLAND
NEW YORK CITY, N. Y.
SCALE 1 INCH = 100 FEET

PREPARED BY THE BOARD OF OFFICERS
BY
MR. KIM, HEAD & WHITE, ARCHITECTS
160 FIFTH AVENUE, N. Y.



head or two, a string of beads, and a few nails." It was then known as Nooten, or Nutten Island. Why the name was changed to Governors Island is, of course, apparent—the island was to be the demesne, belonging to the "King's Governor for the time being."

* * * * *

Near the close of the eighteenth century, in 1794, Governors Island became a military post, and soon after work was begun on Castle Williams, the old historic fort that every traveler sees as he comes up New York Bay.* And right here it may be mentioned that the old castle is one of the four structures that will not be destroyed when the rebuilding of the military post on Governors Island gets under way in earnest. In 1808 New York ceded the island to the National Government, and twenty-one years later it became the Army Headquarters for this section of the country.

In 1832 the island was visited by cholera, and in 1836 the garrison was sent to Florida. The following year the troops came back, and then for fifteen years Governors Island was an artillery post. In 1852 it was made the principal recruiting station of the army. Then came the Civil War, and Castle Williams became, what it is to-day, a prison. In 1878 the island became the headquarters of the Department of the East, and its first commanding general was Gen. Winfield Scott Hancock.

Another historic structure on the island that will escape destruction will be Fort Jay, but Fort Jay in the new order of things will not be the barracks of the enlisted men. Out of the center of it will rise a fine water tower, better than anything of its kind the Government ever owned.

* * * * *

In describing the projected new island, an officer called it taking "an imaginary walk around the Governors Island of ten years hence."

"The walk," said he, "begins at Castle Williams, and we are looking down what is now Hurricane Row, but it's a vastly different Hurricane Row. Instead of the unpretentious red brick buildings that used to face it, there are splendid mansions and a structure finer than all the rest, the latter being the post hospital. First, as we start on this walk, we see small, yet neat, structures, three in number. They are just to the south of Castle Williams. The first house is the barracks of the prison guard, the second and the third are the barracks of the Hospital Corps sergeants, and one hundred feet distant from the third of these structures is the splendid hospital building, the finest to be seen at any military post in America. It faces the bay, and from its windows the inmates can take their choice of views—Manhattan, Jersey, or distant Staten Island.

"Next we notice that Hurricane Row has six splendid mansions for the use of the staff-officers of the Department of the East, in the rear of these houses being a beautiful park, the center of which is the present Fort Jay, now used as a water tower.

"Returning to Hurricane Row, and beginning at the last of the staff residences, we count thirteen other beautiful homes, the one in the middle being more imposing than the rest. These are the homes of the officers in command of the troops on the new Governors Island. Like the homes of the staff-officers, these homes face on the green lawn of the park that is to form a part of the center of the beautiful island.

"At the northern end of the park is a cross-inland roadway lined with trees, and as we pass the crossroad on our journey we count straight ahead seventeen other splendid imposing homes facing the great Parade, which is the center of the whole architectural scheme. On the opposite side of the Parade are seventeen other houses, similar in design to the ones on the east, and, like them, facing the Parade. It is the finest parade ground in the country—1700 feet long and in breadth varying from 1400 feet at the northern end to about 900 feet at the southern end.

"At the end of the row of official residences on the western side of the Parade is a building bigger than the other houses and of a different design. This building is the Post Administration Building; in other words, the regi-

*See facsimile of Colonel Burbeck's order on next page.

Orders

Fort Carlson bus

24 November 1810

In future the Stone Tower on the Island (by the appointment of the Secretary of War) will bear the name of Castle Williams, in honor of the Commandant of the United States corps of Engineers, who designed and erected it. Cannon and mortar will be fired at 12 O'clock, a national salute of seventeen 42 Pounders, will be fired from the lower battery of Castle Williams, in commemoration of the 25th November 1783, the day on which the British troops evacuated the City of New York.

Humboldt

THE CHRISTENING OF CASTLE WILLIAMS.

(From original in possession of Mr. Chandler-Smith of Staten Island.)

mental headquarters. Opposite this building, on the eastern side of the Parade, is a bigger residence than any other on that side of the Parade. That is the home of the bachelor officers on duty on the island.

"We are now at the end of the Parade and are about to cross another roadway that cuts the island in two, and our attention is attracted by six great barrack buildings, whose design clearly indicates their use—they are the homes of the enlisted men. These buildings are south of the Parade and just north of the athletic field, on which the soldiers of the post play at football, baseball, and other field-sports. The barracks accommodate 1200 men, and nothing has been left undone to make them the best soldiers' barracks in the world.

"The athletic field is 600 feet long, 800 feet wide at its northern boundary, and narrowing gently to a width of about 300 feet at its northern boundary. To the left of the barracks, occupying a whole island square, is the post guard-house, architecturally an extremely attractive building.

"South of the guard-house is the Post Exchange, which was established in the expectation that Congress would again allow the army the canteen. South of the Post Exchange are four houses that are occupied by non-commissioned officers who are married.

"We are now at the extreme southern end of the island, and here is located an ornamental structure, from which beautiful lawns slope gently down to the seawall.

"Coming around the southern end of the island and going in a northerly direction, we pass another group of houses for non-commissioned officers, similar in design to those south of the Post Exchange. Here we also find a building which is attractive in appearance, and which we are told is the school, where young men are taught to be good soldiers.

"Crossing the roadway, we pass the band quarters, and then, turning to the left, come out on the broad shore flanking the Parade on the right. This is in the rear of the officers's houses facing the Parade from the eastern side of the island. We pass a needle-shaped structure about 175 feet long by 50 feet wide. This is one of the structures occupied by the Quartermaster's Department. Next comes the Ordnance Building, where the machine guns will be stored; then the commissary storehouse, which is another needle-shaped structure, about 125 feet long by 30 feet wide, in the rear of which is the icehouse. Just a little farther on is the power-house, where will be generated the electricity that will run the Governors Island street car line and furnish the lights for the buildings and streets.

"Next we pass a group of three neat dwellings to be used by civilian employees, and then a space about 700 feet long and 150 feet wide, left open for the construction of future buildings. North of these civilian homes the road takes a sharp turn, and we pass the Officers' Clubhouse and Chapel of St. Cornelius, the Centurion. Then come nine more double residences for civilians, and then the stable of the Department Headquarters Staff.

"A short walk, and we are once more among the residences of the officers and passing first a series of eleven beautiful homes, the houses identical in size and design, each fronting on a beautiful lawn, and each the home of some staff-officer of the Department of the East. Between these houses and lawns, and nearer the park, about 200 feet distant, there are a dozen other homes, all for department staff-officers, which follow out the same general architectural scheme as the first eleven.

"At this point we have arrived near the home of the Commanding General of the Department of the East, a splendid mansion, and by far the most imposing residential structure on the island. Though 300 feet distant from the park, there are no intervening structures between it and the open green. One hundred feet away, and also facing the open park, is the Museum of the Military Service Institution, while 125 feet farther on is the big building from which the Department of the East will be directed—the Headquarters Staff Building." * * *

mustard-seed, cast into the sea the mountain of Russian dominion over Liaotung. Holding that the departed take an intelligent interest in the affairs of earth, and, as the epistle to the Hebrews reads, "we are encompassed about with so great a cloud of witnesses," they believe that the comfort, if not the ultimate welfare of those spirits, during the intervals of a seven-fold incarnation, are affected by the action of their terrestrial successors. A phase of that doctrine is a belief in the continuous life of the race, not merely historically, but in very fact. That not only may we be inspired by the example of ancestors, which is the vital quality of lineage (but upon which we appear to lay less than the desired stress), but that the happiness or uneasiness of those who are disembodied may follow success or failure in the discharge of our earthly duty. As a corollary, to expend one's life is not merely praiseworthy, but fitting. Consequently, referring to the dead of the war with China ten years before, whose material results Japan failed to retain, this officer stimulated his men with words like these: "Above here your comrades' spirits must be soaring, unable to find an eternal place of rest! Men die, but their souls do not perish. Your comrades in the world beyond are fighting with you in this great struggle!" (The Greeks claimed that after Marathon.) Men who respond to appeals like these, who take the farewell drink of water, a sacrament of death, and plunge into a struggle hopeless for themselves, but opening a possible way for others, are invincible, so far as discouragement or moral defeat may go. Such an army of Winkelrieds may only be overcome by unrelenting slaughter. Those devoted men who thus hurled themselves, without a tremor, to willing death were indeed human bullets, and any soldier can see from this vivid account how the morale of the troops at large was raised to the highest pitch. In effect, they reached a state of ecstasy, in which not only were many insensible to suffering at the moment, but some were oblivious of all sensation, until later their physical energy succumbed to disabling wounds.

The narration is more distinctly subjective than objective, but there are glimpses of military detail well worth attention. For instance, the infantry regiment is 3000 strong. The colors are taken into action flying, borne by an officer. At least some of the Russian regiments went into battle with full bands of music playing. The weight of the Japanese knapsack packed is given as "about ten *kwan*," a *kwan* being a little more than eight and a quarter pounds. It is incredible that those little men carried eighty pounds, beside their arms and accouterments, or even with them. This must be a translator's error or one of the press. The machine guns, once they found the range, were the most effective ordnance, and naturally where one missile struck its victim, many others followed, as with the Indian arrows in our earlier frontier fights. One soldier received from them "no less than forty-seven shot in his body, twenty-five on the right arm only. Another soldier of a neighboring regiment received more than seventy shot." In the rugged ground of the Liaotung Peninsula reserve ammunition was brought up on pack animals and distributed by details from behind natural shelter. The soldier "has only one bottleful of water to drink. When he has emptied that he cannot get one drop more." This appears to be the allowance for the day, although possibly it may be for the march. The capacity of the bottle is not noted. Reference is made to the peace training in "quiet marches," which gave excellent results in taking up advance positions at night.

Perhaps one quotation may be used to illustrate both the *naïvete* of the style and of the author himself. "About three o'clock in the

morning the brigade headquarters ordered our colonel to send for instructions at once. I was detailed for this duty, and, accompanied by an orderly, ran one and a half *ri* [the *ri* is two and a half miles] along the river bank, and reached headquarters a little before four o'clock. Unless we ran still faster back to our camp, our regiment could not join the fight in time. So I took off all my clothing and handed it over to the orderly, and ran for one and a half *ri* perfectly naked, with a pistol in one hand and my sword in the other. [Fortunately, this was a July night.] It was still dark and I had to be very careful not to go in the wrong direction. I ran and ran, almost breathless, along the river bank. * * * Fortunately I did not lose my way nor make any mistake and reached our bivouac at ten minutes before five. The assembly was sounded at once and the order to attack was given. The orderly to whom I intrusted my clothing had not yet returned. In the early morning of a summer day it was nice and cool without anything on, but I could not well march in that state. My last duty was done satisfactorily without uniform, but the next seemed to require it. Another orderly was dispatched in search of the first one, but still the latter was not forthcoming. The time had come for us to start. I was in a very awkward plight, when at the last moment my uniform bearer came, and I was saved the distinction of a naked fight. It is a mere joke now, but I was exceedingly anxious then. In this way the most delightful attack and advance was begun just as had been previously planned." Fancy Lieutenant ——— scampering *au naturel* along the Chickahominy and reporting in the dawn of a June morning in that state to Colonel Buchanan, Fourth Infantry! But so the vigorous activity that bore along the flag of the Rising Sun was sustained.

A. A. W.

Shiloh.*

THIS review opens with the statement that "this battle that cost so many lives, and upon which the destiny of the nation was staked, has been less understood, or, as General Grant said, "More persistently misunderstood than any other battle of the war."

Major Reed attributes this to "false and inaccurate reports which were first given to the public by writers for the newspapers and to the jealousies among those in high command who preferred that the people should be misinformed, rather than that the proper credit should be given to a subordinate."

It is a strong paper and is an able defense of General Grant; but does *the* General of the War of the Rebellion, *the* Grant whose memory we all cherish, require any such elaborate defense, even if "the President of the Society of the Army of the Cumberland" attacks the record of the Army of the Tennessee at Shiloh quoting these authors as authority?

Of General Halleck's motives in his outrageous treatment of General Grant, the writer has much to say, but we do not require to know Halleck's motives, we know exactly what he did, and we judge of him as a man and as a commanding general by his acts.

*A paper prepared by Maj. David W. Reed for the Thirty-sixth Reunion of the Society of the Army of the Tennessee, at Council Bluffs, Ia., November 8 and 9, 1906, has under the heading of "Shiloh," a review of "Villard's Memoirs" and "John Codman Ropes' Story of the Civil War."

His opinions and his judgments have little weight with military students to-day.

General Grant made his superiors in the Department of the West and the officials of the War Department in the East respect him, trust him and, finally, depend upon him through his independence and his continued successes, won in spite of Halleck's proximity and interference.

The hero of Vicksburg does not require anyone to explain why he drove the rebels to Corinth—or how he did it—far less does the public desire to bring in question his conduct during the Battle of Shiloh. If General Grant was defeated at that battle, or if any other army save his own bore the brunt of that battle, Grant was not aware of it. But the Army of the Ohio did much to enable the Army of the Tennessee to recover its first line of battle, and did hold the right wing of the Army of Johnston and Beauregard in their front. Major Reed says, "The Army of the Ohio did its duty on Monday, and did it well," and then quotes the statement of Villard, "No decisive offensive power could be claimed for the Army of the Tennessee on Monday."

Then comes the gist of Major Reed's paper: "When this exact statement is reiterated by the 'Society of the Army of the Cumberland' it is an attempt to belittle the record of the Army of the Tennessee that justifies a reference to the official records and to the casualty list, which shows that single regiments of the Army of the Tennessee lost more men killed than any whole brigade of the Army of the Ohio."

Now, Villard was a correspondent following the Army of the Ohio.

Reed's review of Villard's statement is able and convincing. It should be on file with library records referring to the Battle of Shiloh.

Major Reed then adds his review of John Codman Ropes' chapter on Fort Donelson and Shiloh as published in "Story of the Civil War."

Inasmuch as Mr. John Codman Ropes was known to be a scholar of the highest position among literary men and a well-known writer on military affairs, he cannot be classed among the "penny a liners," and this review is more temperate and argumentative than the review of Villard's story. If Mr. Ropes could have read Major Reed's paper, it is certain that he would have withdrawn some of his criticisms of General Grant.

Reed's paper is convincing and will be accepted as an able refutation of the criticism that there was want of capacity on the part of General Grant. Reed shows again and again the evil effects of General Halleck's orders, instructions and interference.

M. S. I.

Our Exchanges.

American Society of Civil Engineers (November).

Army and Navy Journal (to date).

Army Service Quarterly (London) (July).

Army and Navy Chronicle (London) (November).

Artilleristische Monatshefte (February).

Artilleri-Tidskrift (to date).

Arms and the Man (December).

Boletin del Centro Naval (September).

Bulletin American Geographical Society (November).

Canadian Military Institute (to date).
 Current Literature (November).
 Journal of the Association of Military Surgeons (November).
 Journal of the Royal Artillery (November).
 Journal of the United States Artillery (September).
 Journal of the U. S. Cavalry Association (October).
 Journal of the U. S. Infantry Association (November).
 Journal of the Royal U. S. Institution (November).
 Journal of the Western Society of Engineers (October).
 La Revue Technique (to date).
 La Belgique Militaire (to date).
 Our State Army and Navy (Penna.) (to date).
 Political Science Quarterly (December).
 Proceedings of the U. S. Naval Institute (September).
 Review of Reviews (to date).
 Revista di Artiglieria e Genio (October).
 Revista Del Ejercito Y Marina (December).
 Revue de l'Armee Belge (to date).
 Revue Militaire (November).
 Revue Artillerie (November).
 Ridgway's (to date).
 Royal Engineers' Journal (November).
 The Army and Navy Life (to date).
 The Arrow, Indian Industrial School (to date).
 The Cavalry Journal (London) (October).
 The Century Magazine (December).
 The District Call (to date).
 The Medical Record (to date).
 The Pennsylvania German (December).
 The Popular Science Monthly (December).
 The Scientific American (to date).
 The Seventh Regiment Gazette (November).
 The Texas N. G. Journal (to date).
 The World's Work (April).
 United Service Gazette (London) (December).
 United Service Magazine (London) (December).

Received for Library and Review.

- War and the World's Life.* By Col. F. N. Maude, C. B. (London.)
 Smith, Elder & Co., 1907.
Addresses, Historical, Political, Sociological. By Frederic R. Coudert.
 (New York.) G. P. Putnam's Sons, 1905.
Autobiography of Oliver Otis Howard. 2 vols. (New York.) The
 Baker & Taylor Co., 1907.

The Spirit of Old West Point, 1858-1862. By Morris Schaff. (Boston and New York.) Houghton, Mifflin & Co., 1907.

Human Bullets. A Soldier's Story of Port Arthur. By Tadayoshi Sakurai, Lieut. J. J. A. (Boston and New York.) Houghton, Mifflin & Co., 1907.

The Regimental War Game. By Immanuel, Captain and Instructor at the War School at Eugens, Germany. Trans. by Walter Krueger, Lieutenant, Twenty-third Infantry. Franklin Hudson Publishing Co., Kansas City, Mo., 1907.

Extracts from Reports of Officers of the United States Army, Camps of Instruction. Washington, Government Printing Office, 1906.

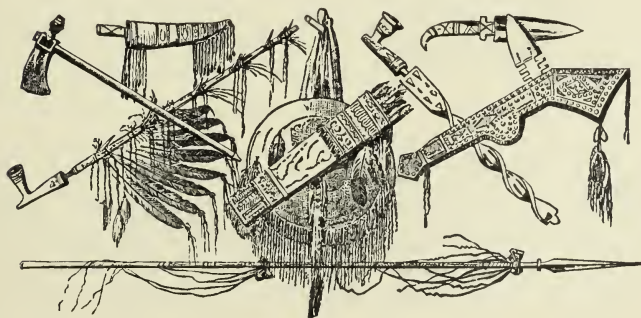
Administration, Organization and Equipment Made Easy. By Lieut.-Col. S. T. Banning, late Royal Munster Fusiliers. (Aldershot.) Gale & Polden, Ltd., 1907.

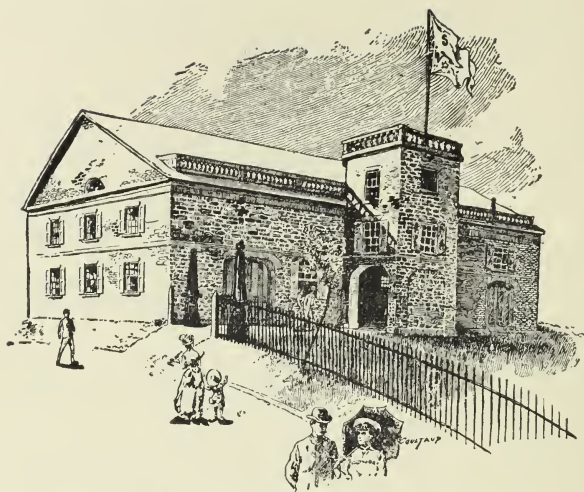
The Signaler's Pocket Book; Practical Hints and Notes on Army Signaling. By G. W. Browne, Twentieth Hussars. (London.) Gale & Polden, Ltd., 1907.

Officer's Manual. (For use of subalterns.) By Capt. Jas. A. Moss, Twenty-fourth U. S. Infantry. Second edition (revised), 1907.

Great Captains. Napoleon. By Theodore Ayrault Dodge. Vols. 3 and 4. (Boston and New York.) Houghton, Mifflin & Co., 1907.

Northwestern Fights and Fighters, 1876-1900. By Cyrus Townsend Brady. The McClure Co., New York, 1907.





THE MUSEUM OF THE MILITARY SERVICE INSTITUTION OF THE UNITED STATES,
GOVERNOR'S ISLAND, NEW YORK HARBOUR.

Editor's Bulletin.

Awards of Prizes.

PRIZES have been awarded as follows:

Seaman Prize, 1907 (1st), \$100. To Brig.-Gen. Woodhull, M.D., U. S. A., retired. (2d) \$50. To Maj. Charles Lynch, M. D., U. S. A.

Ames Prize, \$50. To Capt. Eli. L. Helmick, Tenth U. S. Infantry.

Fry Prize, 1907, \$50. To Lieut. Frank Lahm (Cav.), Signal Corps.

Prize Subjects.

Prize Subjects, 1908, are announced as follows:

Gold Medal. Two prizes, \$100 and \$50. "What is the Cause of the Recent Falling off in the Enlisted Strength of the Army and Navy, and What Means Should be Taken to Remedy It?"

Seaman Prize No. 1. \$100. "The Medical Department of the United States Army: Upon What Lines Should its Organization be Instituted?"

Seaman No. 2. \$50. "The Company Non-Commissioned Officer: How Can His Efficiency Be Best Promoted and His Re-enlistment Secured?"

Accessions
to
Library.

The Library acknowledges:

From Maj. FRANK KECK, late Seventy-first Regiment, N. G. N. Y. (1) "The Battle of Chancellorsville, Etc." (Hamlin); (2) "The Uniformed Battalion of the Veterans, Seventh Regiment, N. G. N. Y., 1862-92."

Accessions
to the
Museum.

The Museum has received from:

Col. H. O. S. HEISTAND, U. S. A., *A Pencil*, given him at his request by President McKinley, by whom it had been long used.

Miss ANNA RUGER. *General Officer's Shabrack*, formerly used by her father, the late Maj.-Gen. Thomas H. Ruger, U. S. A.

COL. JOHN H. CALEF, U. S. A., *Officer's Field Trunk*, used during the Revolution by his great-grandfather, Colonel Jeduthan Baldwin, of the Engineers, Continental Army.

AN OFFICER OF THE ARMY, *Piece of Corduroy*, from the road-bed leading to Duane Bridge, Chickahominy River, on McClellan's Peninsular Campaign, 1862. *Piece of Weather-Board*, from house shattered by bullets during Sheridan's Hampton cavalry fight at Trevilian Station, Va., June 11-12, 1864.

Amend
Prize
Rules.

Prize Rules, governing the award of the Gold Medal, and for Short Papers were amended by the Executive Council (Nov. 13, 1907) as follows:

"Resolved, That on and after January 1, 1908, none but Members and Associate Members of the MILITARY SERVICE INSTITUTION shall be eligible to compete for the Gold Medal or Short Paper prizes; provided that this rule shall not apply to Short Papers already entered and published under the old rules."

"Resolved, That the rules governing the award of Gold Medal prizes for essays submitted to the MILITARY SERVICE INSTITUTION are amended to exclude from consideration the essays from any one person submitting in any competition more than one essay on the same subject, or who may write over more than one *nom de plume*." (Amended December 18, 1907.)

Accessions
to the
Members-
hip.

The **Membership** has been increased since last publication by the following-named officers:

Lieut. J. L. HOLCOMBE, Coast Artillery Corps.
 Capt. W. R. VANCE, Coast Artillery Corps.
 Lieut.-Col. C. G. WOODWARD, Coast Artillery Corps.
 Capt. H. S. KERRICK, Coast Artillery Corps.
 Lieut. A. L. KEESLING, Coast Artillery Corps.
 Lieut. T. DUNCAN, Coast Artillery Corps.
 Lieut. M. L. BRETT, Coast Artillery Corps.
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 Lieut. G. M. MORROW, Jr., Coast Artillery Corps.
 Lieut. J. F. CLAPHAM, 5th U. S. Infantry.
 Lieut. J. S. BUTTON, 2d Regt. N. G. N. Y.
 Lieut. T. W. BULLITT, 2d Regt. Ky. Cavalry.
 Lieut. J. C. DRAIN, 28th U. S. Infantry.
 LIEUT. C. L. EASTMAN, 28th U. S. Infantry.
 Capt. H. K. TAYLOR, Coast Artillery Corps.
 Lieut. J. M. PAGE, Coast Artillery Corps.
 Lieut. F. O. ARMINGTON, 3d Regt. Conn. N. G.
 Capt. W. H. WARREN, Conn. N. G., Retired.
 Capt. F. B. BOWER, 3d Regt., Pa. N. G.
 Capt. J. WHEELER, Jr., Coast Artillery Corps.
 Capt. J. E. WYKE, Coast Artillery Corps.
 Lieut. J. V. BOYD, 5th U. S. Infantry.
 Capt. H. F. STANLEY, 5th U. S. Infantry.
 Lieut. V. M. ELMORE, Jr., 5th U. S. Infantry.
 Lieut. J. K. CRAM, Coast Artillery Corps.
 Chaplain C. S. WALKLEY, Coast Artillery Corps.
 Lieut. B. G. MOORE, Coast Artillery Corps.
 Lieut. M. H. THOMPSON, Coast Artillery Corps.
 Lieut. F. H. SMITH, Coast Artillery Corps.
 Capt. Guy CUSHMAN, 15th U. S. Cavalry.
 Lieut. M. G. HALLIDAY, 15th U. S. Cavalry.
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 Second Lieut. C. MCP. JANNEY, 12th U. S. Infantry.
 Second Lieut. A. W. MAISH, 12th U. S. Infantry.



Journal
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Military
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Institution

1878

1908

Governor's
Island
N. Y. H.

THE JOURNAL

MARCH-APRIL, 1908



SOME papers received for publication in the JOURNAL:

- I. "THE MILITARY NECESSITIES OF THE UNITED STATES AND THE BEST PROVISIONS FOR MEETING THEM." (Gold Medal Essay.)
- II. "THE SCOPE OF TEACHING THAT SHOULD BE FOLLOWED IN THE NEWLY ESTABLISHED CHAIR OF HYGIENE AND SANITATION IN THE MILITARY AND NAVAL SCHOOLS AND THE PRACTICAL RESULTS TO BE EXPECTED THEREFROM." (Seaman 1st Prize Essay.) By Gen. A. A. Woodhull, M.D., U. S. A.
- III. "MILITARY BANDS." II. By Major F. A. Mahan, U. S. A. (retired).
- IV. "THE VICKSBURG CAMPAIGN." (Map) By Capt. C. D. Rhodes, 6th U. S. Cavalry.
- V. "CAVALRY OPERATIONS IN THE RUSSO-JAPANESE WAR." II. (Ill.) By Lieut.-Col. J. C. Gresham, 14th U. S. Cavalry.
- VI. "TRANSMISSION OF MILITARY INTELLIGENCE." IV. (Ill.) (Concluded.) By Lieut.-Col. G. P. Scriven, Signal Corps.
- VII. "NOTES ON THE NATIONAL GUARD SYSTEM." By Col. R. W. Leonard (late) U. S. V.
- VIII. "COLONIAL PROTECTION." A Mobile Army for the First Line of Action. By Capt. C. Nixon, Q. M. D., U. S. A.
- IX. TYPES AND TRADITIONS OF THE OLD ARMY. "SOLDIERING IN FLORIDA, 1855." By Bvt. Major-Gen. Alex. S. Webb (late) U. S. Army.

THE PUBLICATION COMMITTEE invites contributions of original papers, translations and comments upon current topics. Attention is called to "Gold Medal," "Seaman," "Short Paper," and "Santiago" prizes described elsewhere.

The Military Service Institution.

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MEMBERSHIP AND DUES.

Membership dates from the first day of the calendar year in which the "application" is made, unless such application is made after October 1st, when the membership dates from the first day of the next calendar year.

Initiation fee and dues for first year \$2.50; the same amount annually for five years subsequently After that two dollars per year. This includes the Journal. Life membership \$50.

NOTE.—Checks and Money Orders should be drawn to order of, and addressed to, "The Treasurer Military Service Institution," Governor's Island, New York City. Yearly dues include Journal.

No Address changed without Notice.



Gold Medal—1908.

First Prize—Gold Medal, \$100 and Life Membership.

Second Prize—Silver Medal, Honorable Mention and \$50.

I.—The following Resolution of Council is published for the information of all concerned:

Resolved, That a Prize of a Gold Medal, together with \$100 and a Certificate of Life Membership, be offered annually by THE MILITARY SERVICE INSTITUTION OF THE UNITED STATES for the best essay on a military topic of current interest, the subject to be selected by the Executive Council, and a Silver Medal and \$50 to the first honorably mentioned essay. Should either prize be awarded more than once to the same person, then for each award after the first, a *Clasp* shall be awarded in place of the medal.

1. *Competition to be open to Members and Associate Members only.**

2. Each competitor shall send three copies of his essay in a sealed envelope to reach the Secretary *on or before January 1, 1909*. The essay must be strictly anonymous, but the author shall adopt some *nom de plume* and sign the same to the essay, followed by a figure corresponding with the number of pages of MS.; a sealed envelope bearing the *nom de plume* on the outside and enclosing full name and address, should accompany the essay. This envelope to be opened in the presence of the Council after the decision of the Board of Award has been received.

3. The prize shall be awarded upon the recommendation of a Board consisting of three suitable persons chosen by the Executive Council, who will be requested to designate *the essay deemed worthy of the prize*; and also in their order of merit those deserving of honorable mention.

In determining the essay worthy of the prize, the Board will be requested to consider its professional excellence, usefulness and valuable originality, as of the first importance, and its literary merit as of the second importance. Should members of the Board determine that no essay is worthy of the prize, they may designate one or more essays simply as of honorable mention; in either case, they will be requested to designate one essay as first honorable mention. Should the Board deem proper, it may recommend neither prize nor honorable mention. Should it be so desired, the recommendation of individual members will be considered as confidential by the Council.

4. The successful essay shall be published in the Journal of the Institution, and the essays deemed worthy of honorable mention shall be read before the Institution, or published, at the discretion of the Council, which reserves the right to publish any other essay submitted for a prize, omitting marks of competition.

5. Essays must not exceed ten thousand words, or twenty-five pages of the size and style of the JOURNAL (exclusive of tables), nor contain less than five thousand words.

II.—The Subject selected for the Prize Essay of 1908 is

**"WHAT IS THE CAUSE OF THE RECENT FALLING OFF IN THE
ENLISTED STRENGTH OF THE ARMY AND NAVY, AND WHAT
MEANS SHOULD BE TAKEN TO REMEDY IT?"**

III.—The Board of Award is named as follows:

Rear Admiral CASPAR P. GOODRICH, U. S. N.
Major-General WILLIAM F. DUVALL, U. S. A.
Brig.-General EDWARD S. GODFREY, U. S. A.

GOVERNOR'S ISLAND, N. Y.,
Jan. 1, 1908.

T. F. RODENBOUGH,
Secretary.

*As amended Nov 13, 1907. (See also page 149.)

1908

Annual Prizes—1908

THE SEAMAN PRIZES.

(Founded by Major L. L. Seaman, M.D., LL.B., late Surgeon, U. S. V.)

One Hundred Dollars.

Seaman
Prize
I

For best essay on a subject selected by Major Seaman and approved by Council; competition open to all officers and ex-officers of Army, Navy, Marine Corps, Marine Hospital Service, Volunteers or National Guard; in other respects same as Gold Medal prize except that essays are limited to 15,000 words, and are due November 1.

Subject: "The Medical Department of the United States Army: Upon what lines should its Reorganization be instituted?"

Board of Award: Col. P. F. HARVEY, M.D.; Capt. CHARLES LYNCH, M.D., and Capt. N. S. JARVIS, M.D., U. S. A.

Fifty Dollars.

Seaman
Prize
II

(Rules same as Prize I, except that essays shall comprise not less than 2,000 nor more than 5,000 words.)

Subject: "The Company Non-Commissioned Officer: How can his efficiency be best promoted and his re-enlistment be secured?"

Board of Award: Brig.-Gen. J. P. MYRICK, U. S. A.; Lieut.-Col. R. L. HOWZE, U. S. A., and Capt. J. H. McRAE, Gen. Staff.

THE SANTIAGO PRIZE.

(Founded by the National Society of the Army of Santiago de Cuba.)

Fifty Dollars.

Santiago
Prize

For "best article upon matters tending to increase the efficiency of the individual soldier, squad, company, troop or battery," published in the JOURNAL M. S. I. during a twelvemonth, ending December 1; awarded upon recommendation of Board selected by President N. S. A. S. C.; competition limited to officers of the Army and National Guard below grade of Lieut.-Colonel; essays not less than 1,000 nor more than 5,000 words.

HANCOCK PRIZE.

Fifty Dollars.

For best short paper on matters affecting the *Line* of the Army, published in the JOURNAL during twelve months ending May 1.

Short Paper
Prizes

FRY PRIZE.

Fifty Dollars.

For best short paper on matters affecting the *General Service* not covered by Hancock Prize, published during the twelve months ending Sept. 1.

Essays to be not less than 1,500 nor more than 3,500 words.

Publisher's Department.

A PERFECT FORM OF EXPANDING BULLET.

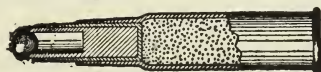
All uncertainties are eliminated in the Hoxie Patented Expanding Bullet.

Clipped from Scientific American of May 11, 1907:

The small-bore, high-power rifle that is in general use to-day was originally designed as a military rifle, the object of which is to wound or maim at extreme range; and owing to its high velocity, the trajectory is so flat that the raising or changing of sights under ordinary circumstances is unnecessary. Sportsmen, seeing the advantage gained by great velocity, were quick to adopt this type of rifle. It was found that by inverting the jacket of the full metal patched bullet so as to leave the soft nose exposed, this bullet when striking hard substances, such as

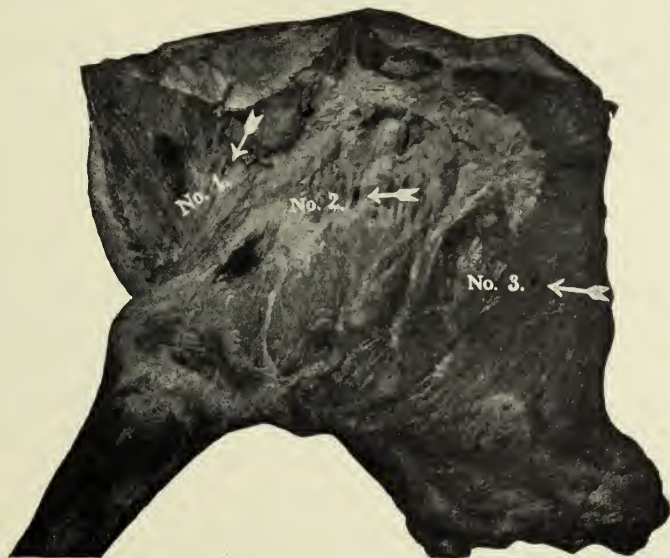


Cut shows expanded steel jacket of a Hoxie 33-caliber rifle bullet; was extracted from the beef about 4 inches from the surface, the lead of the bullet passing through, leaving a 3-inch rent where it went out.



Sectional Cut.

bone, will very often mushroom or expand, causing a severe wound. Improvements in powder have from time to time increased the velocity of these bullets until they now have a muzzle velocity of 2,700 feet per second. With this velocity even the soft-nosed bullets will pass through the animal without expanding in the least until some hard substance is struck, when it is apt to



One-Quarter Beef.

fly to pieces. The great heat caused by friction in the air causes the bullet to cauterize the veins and arteries, causing little bleeding and thus making it impossible for the hunter to track his game by the blood. It is stated on reliable authority that this year in Nova Scotia over forty per cent. of the

game hit or wounded escaped, some to die a lingering death in great agony.

To overcome these objections to the ordinary bullet, Mr. G. H. Hoxie, president of Hoxie Ammunition Co., Chicago, Ill., has invented the form of bullet illustrated in section in the accompanying drawing. The bullet consists of a jacket with a filling of lead in which a steel ball is seated. In another construction a steel wedge is used in place of the ball. Behind the ball is a chamber formed in the filling. When the bullet strikes an object the ball is forced into the chamber, expanding it and tearing it open. One of the illustrations shows the character of wounds produced by this bullet as compared with other wounds. The arrows 1, 2, and 3 point to wounds produced by the ordinary soft-nosed bullet. The wounds made by the improved bullet are four or five times larger, and need no designating arrows.



The attention of our readers is especially called to the advertisement of the well-known firm of *E. T. COWDREY & CO., Inc.*, on page 9.

This firm is one of the oldest and best known packers of high-grade canned goods and pure preserves, and enjoys an enviable reputation for the quality of their goods.

They are the original packers of Cowdrey's Bay State Brand of Cranberry Sauce, made from selected Cape Cod cranberries, which many have unsuccessfully tried to imitate. Their pure strawberry, raspberry and blackberry jams are also well known and have never been equaled in quality.

Their extensive line of factories in Massachusetts and New York State enables them to be in the center of the best packing district in the country, and to have a very large output.

We note from samples of their goods which we have recently seen that they are up to date in their packing methods, and that practically all their goods are now being packed in the sanitary enameled-lined cans sealed without the use of solder, and which makes an absolutely sanitary and attractive package.

We cannot recommend too highly to our patrons any and all goods bearing the name "Cowdrey," and trust that their trade will have the continued increase that the quality of their goods deserves.

JOURNAL
OF
THE MILITARY SERVICE INSTITUTION
OF THE
UNITED STATES.

"I cannot help plead to my countrymen, at every opportunity, to cherish all that is manly and noble in the military profession, because Peace is enervating and no man is wise enough to foretell when soldiers may be in demand again."—GENERAL SHERMAN.

Vol. XLII.

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No. CLII.

Seaman First Prize 1907.

THE SCOPE OF TEACHING THAT SHOULD BE FOLLOWED IN THE NEWLY ESTABLISHED CHAIR OF HYGIENE AND SANITATION IN OUR MILITARY AND NAVAL SCHOOLS, AND THE PRACTICAL RESULTS TO BE EXPECTED THEREFROM.

BY BRIGADIER-GENERAL A. A. WOODHULL, U. S. A. (RETIRED).

LATELY COLONEL MEDICAL DEPARTMENT.

GOLD MEDALIST MILITARY SERVICE INSTITUTION.

"Health, a most important concern in armies, is, in reality, little regarded in military or civil arrangement. . . . As the attainment of knowledge is tedious and difficult; and as men who possess power frequently flatter themselves that they possess knowledge, they do not lend a willing ear to instruction presented by inferiors—they follow their own opinions—and they err in their course."—Robert Jackson. *A systematic View of the Formation, Discipline and Economy of Armies.* (1804.)



IT is becoming recognized more generally and more clearly than formerly that the physical vigor of an army, upon which so much of its efficiency depends, is mainly contingent upon conditions which we may modify. Disease no longer represents the anger of an offended god on the plains of Troy nor the direct chastening of Jehovah, as in the Wilderness, excepting as it is a consequence of violating eternal laws. Its very existence, not merely its relief, may be qualified if not controlled by human agency. In military and naval life the efficient agents who exercise this qualification or control are the officers, and the question propounded is what is the scope of the teaching

to be supplied young men in training for commissions and the results legitimately to be expected therefrom. Following the dictionary, scope is the end to be aimed at, that which may be accomplished. The spirit of the inquiry, however, seems directed to the various steps as well as to the ultimate result. The literal scope of a campaign may be the reduction of a certain city or province, but in popular speech the scope of operations would be the range they should take to accomplish the ultimate end in view. The writer will therefore consider the end desired, the better means to accomplish it, and how far success may reasonably be expected.

Hygiene is a generic term for a system of principles to preserve health, and sanitation is the practical application of such principles and rules. Ideally developed these would be represented by a collection of healthy individuals, in this case soldiers, subject to no pernicious influence and hence always remaining vigorous and active excepting as disqualified by injuries or deteriorating under the gradual decay of age. It would be a command with a blank sick report apart from the casualties of accident or of action. That may seem a counsel of perfection, but it is the logical end of military sanitary science. To approach it, the cadets and midshipmen should be dogmatically instructed that, given healthy men of the military age, all disease comes from without. The apparent exceptions to that rule, such as malignant disease like cancer, inherited diatheses as gout, nervous disturbances as insanity, are probably exceptional because of the limitations of our knowledge or because of the insanitary lives of the victims' ancestors. It may be conceded that there would be no sickness under ideal conditions, so that the next point to be impressed is that the morbidity, or sick-rate, is an important index of military efficiency and may be more effective in controlling operations than the mortality, or death-rate. That will depend in part upon the degree and the continuance of the illness. The activity of a battalion, and in the same ratio that of an army, would be less interfered with by twenty deaths after a few days' illness from an acute disease like cholera, than by as many cases of prolonged dysentery. Typhoid fever, from which every case may ultimately recover, exercises more restraint than yellow fever from which thirty per cent. may die. The reason is that the care of the sick, particularly of the seriously sick, is a greater drain upon the resources of the living and is especially to be deprecated because of its interference with mobility. Dysen-

teric disability is liable to recur; typhoid cases involve very prolonged unfitness; but fatalities only represent physical capital lost, which recruits may replace. Substitution in the ranks for the man who is ill, whether present or absent, cannot occur until his case terminates in one way or the other. Sickness, whether in the field or the garrison, means an expenditure of money and vital energy, multiplied in modern times by the peremptory demands of a humanity which is quite willing to sacrifice thousands of men in battle but is unwilling to neglect any attention that may add to comfort and prolong life for those, even incurable, failing under disease. These two principles should be thoroughly inculcated: that disease is extraneous and abstractly needless, and that the sick enfeeble the command without, as the wounded may be supposed to have done, having inflicted proportionate disability upon the enemy. Then should follow a definitive statement that military sanitation, applied hygiene, is a positive and progressive science. Its present perfection should not be asserted; but its trustworthiness and its steady advance are to be positively claimed.

The prospective officers should next be advised as to the relation that the medical staff in each service bears to its respective line. Important as it is, this is extremely delicate because it may easily involve questions which lie at the foundation of all discipline, and when not treated with discretion these may react upon and mar the cause of the champion who is confident that the entire shield is golden because the side presented to his view is gilded. A line officer, and particularly a commanding officer, is properly jealous of the right of command. And command is indivisible. Since the days of the consuls no duumvirate or triumvirate ever administered with success in the cabinet or triumphed in the field. This bug-bear of rival authority, of an *imperium in imperio*, has been magnified by the moral difficulty of accepting advice, especially when initiated by them, from officers whose commissioned status is very modern and who, on that account, have been regarded as attached to, rather than as a part of, the army. It has been the age-long theory that medical duties are wholly clinical. It was reckoned one thing to care for a sick man, and another quite foreign thereto to suggest how troops should avoid sickness. That seemed to approach dangerously near commanding them—a function which, at least in theory, is alien to the staff. Given a relatively free hand with the disabled, the well were not supposed to come within the cognizance of the medical

officers as such. It may be alleged with confidence that sanitary science has now established its claim not merely to be considered but to be respected, and that experts in military sanitation have a moral right to be heard. The position of steam in the navy, although not altogether analogous, is illustrative. The naval engineer does not command the ship, but he must be in immediate control of his working force; and his judgment as to what may and what may not be done with the machinery is entitled to a respect that is practically conclusive. The commanding officer, afloat or ashore, has ultimate jurisdiction over all action, and disrespect or disobedience involves the gravest hazard. Command is a military function, upon whose exercise may depend the ultimate success of the operations for which the officer entrusted with it is directly responsible or in which he may be participating. In turn he is accountable to higher authority for his ship or his fortress, and should he fail, actively or passively, he must justify himself. But this obligation to do the utmost for the advantage of his command requires a justification when the advice or the judgment of his medical officers is overruled or ignored and disaster follows the rejection or neglect. It may be maintained that in a large way it is better to sacrifice health and, moderately, even life, than to limit too closely the arbitrary authority upon which responsibility for the efficiency of the command ultimately rests. But there is the greater risk that the exercise of authority not tempered by a clear appreciation of all the conditions may result in weakening, if not in destroying, that confidence of the subordinate which is so great an element in military achievement. The object, then, of teaching military hygiene to cadets and midshipmen is to supply them with one more qualification for command, with one more agency of success, when they recognize that there is such a science as preventive military medicine, totally distinct from clinical medicine; and particularly that they may be familiarized with fundamental sanitary principles so that, avoiding their gross violation, they also may accept the technical advice of their medical officers even should they fail to appreciate the premises in detail. It should be no part of the system to attempt the conversion of regimental officers, still less of cadets, into medical experts; but one may discriminate in art without being an architect or sculptor, he may designate a general route for a highway without being an engineer. Certain fundamental facts are to be dogmatically presented. Thus, the graduated cadet should hold as a working

principle not merely the dictum that a certain air-space in barracks is necessary, but also that the contained air should be changed with becoming regularity; although he may not be even enough of a physiologist to appreciate why health depends upon fresh air, nor have the knowledge of aërostatics that would explain even an uncomplicated system of ventilation. So with the composition of the ration; so with the disposal of waste; and with the general catalogue that goes to make up competent sanitation. The time is too short and the course is too crowded for the cadet to analyze the subject or to revert to first principles. He must learn and believe that such and such are the conditions, and that such and such consequences follow violations of the established rules. He must understand that infractions of sanitary law are not always conspicuously punished. The man who drinks infected water will promptly contract typhoid fever or cholera, as the case may be; but the man who sleeps in a vitiated atmosphere may only gradually succumb. Such instruction is best given by lectures based upon and supplementary to a text-book. The winged words of an interested and intelligent speaker make a more vivid impression than the formal sentences of the printed page. The qualified lecturer would not be content with a recital of the text-book; he would supplement it with examples and illustrate it with the side-lights of his own or others' experience. But the text-book should be at hand as a storehouse of facts, a reserve upon which to depend.

It is assumed that it is no purpose of the assigned theme to develop an essay on Military Hygiene. Therefore, omitting particulars, that is to say not writing a series of lectures on Military Sanitation, the range of the teaching to be presented to the cadets, as it appears to the writer, should be substantially as follows: First it must be made clear that the rank and file should be carefully chosen, that not every chance applicant is good enough for a soldier. The material must be selected. Stress should be laid on the importance of securing sufficiently literate men, of good character and sound physique. As a matter of course, the Engineer mechanics, the Hospital and Signal Corps in the army, the machinists, electricians and clerical force in the navy, must be men of special qualifications as well as aptitude. But beyond these the long range small arms and complicated great guns afloat and in fixed batteries require men of intelligence for their successful operation. The revolution in drill and in field work ashore requires self-reliance and dash, to replace

the older touch-of-the-elbow confidence and the momentum of solid ranks. The increasing employment of quick-firers on the decks and machine guns in the tops calls for another class of seamen than those who manned the now disappearing yards. The recruiting officer must insist upon alerter intelligence, not necessarily more learning, for the rank and file, if for no other reason than that they may appreciate the ways and means of taking care of themselves which modern sanitation presents. But physique also is more important than ever. Constant iteration may develop dormant faculties, and the friction of incessant drill may polish and temper unpromising material, until a good average man-at-arms is the product. But nothing can be done without a flawless physique. There are points, as for instance the absolute integrity of the heart and lungs and the freedom from certain other obscure internal conditions, of which the medical officer must judge. But an attentive officer of the line can satisfy himself of the mobility of the joints, of the absence of disqualifying cranial scars, of the range and quality of the vision and the hearing. Such service is to be impressed upon the cadet because he should understand that not only is it becoming, but on occasion it is a duty, for him personally to examine as well as to inspect men who appear for enlistment. Of those physical features which conspicuously come under such observation nothing is more important to be insured than vital capacity, the range of lung action and not the mere circumference of a chest which may be overlaid with fat or be immobile. A man must breathe well and deeply to discharge military duties. This is emphasized because inexperience, impressed by stature or comeliness, may be tempted to waive chest mobility as an unimportant exaction. This matter of physical fitness is even more important when in emergency, as the outbreak of war, the uniformed militia pass over into regiments of volunteers, or the merchant marine and veritable landsmen furnish their quota to the man-o'-war's men. Roughly speaking, three regiments of the National Guard will make one of volunteers for the field. The Guard is in fact, if not in theory, organized for temporary and immediate police action in peace, and for war only in the most provisional sense as supplying an emergency defense. In general terms, it is a quasi-military club in which membership is acquired without a searching physical examination, which its functions do not require, and it would promptly succumb to the continued strain of the field. The steady flame of military endurance cannot be sustained by

the immature and weedy, nor by the superannuated who occasionally cling to their old militia associations through sentiment, however they may flash under the impulse of an ephemeral martial ardor. There are many notable exceptions in individual regiments, and there are occasional organizations to which this only partially applies; but speaking generally, these nominal soldiers of the individual commonwealth should be scrutinized as carefully as original recruits. For various reasons there is always pressure to have volunteers accepted, followed soon after by greater, if not as generous, pressure for their discharge. Rigorous discrimination will save subsequent worry and loss, for nothing that rests upon an insecure foundation can be depended upon under stress. A thousand men without blemish are infinitely superior to twelve hundred whose virtue is on paper and over whom, or a considerable part of whom, discharge for antecedent disability may be impending. It must be urged that active service requires a vigorous body and that responsibility for accepting obviously imperfect men cannot be transferred to another. It is far better to reject a possibly acceptable recruit than to accept one who is doubtful. The quality, not the number, of recruits is the true test of efficiency in that service. Pertaining to this, wherever the color-sense is important the soldier or sailor should be re-examined after every severe illness, because from unrecognized conditions color-blindness occasionally follows acute attacks of severe general disease. This stress is laid upon the instruction of cadets in the importance of bodily soundness, notwithstanding recruiting is not to be classed as a part of hygiene, because original vigor is the special safeguard against physical failure. In this field precaution is prevention. The students' time is not to be dissipated in acquiring theoretically the details of recruiting, but those young men should be charged with the importance of a mature as well as a vigorous rank and file. Neither army nor navy is a nursery for the undeveloped nor an asylum for the infirm; although it may be remarked obiter that an apprentice system for the army should be as effective in preparing soldiers as that of the navy is in making sailors.

The next doctrine to inculcate, after that of securing sound men, is that, as a rule, disease is not spontaneous but follows infection or the personal neglect of wholesome living. It may therefore logically be taught that with such causes avoided little sickness will occur. Nor is it necessary to make medical students of the cadets, or physicians of the officers, for them to un-

derstand this. For instance, it can be explained clearly, but in simple language, that each of the great and disqualifying groups of malarial diseases depends upon one of several of the lowest animal, or amœbic, parasites for which a variety of the mosquito has served as an intermediary host. The mosquito has acquired it from an infected case and, after it has developed, inoculates it into an exposed victim. Hence there are two preventive measures; either restraint of the mosquitoes already infected, or the inhibition of such infection of vagrant mosquitoes by the sick. If no mosquitoes, normal or infected, come in contact with the men, neither will sound insects become contaminated nor will the men become diseased. That is to say, malarial disease cannot spread under such conditions. Established by Laveran, of the French, and Donald Ross, of the British military medical service, that is a good working proposition in the present state of our knowledge, however defective it may be in accounting for the origin *de novo* of the malarial poison. But as we cannot control the civil population among which the troops must serve, and thus prevent infection of the insect hosts, the more important it becomes to protect the military as individuals. Based on these premises, the necessity of using mosquito-bars and other personal precautions, and the desirability of suppressing the breeding-places of mosquitoes and of the general destruction of the insects themselves, can be explained and illustrated in detail with emphasis not necessary to apply here. The control of yellow fever, for the scientific demonstration of which the world is under an inexpressible debt to Walter Reed, of blessed memory, and for its practical and conclusive working proof to Havard and Gorgas, under the friendly support and intelligent authority of Gen. Wood, all of the army, is under the same general plan. Properly instructed as students, officers of the line will not ridicule and restrain efforts to abolish the almost ubiquitous pest ashore, nor will ships once tainted with yellow fever be allowed to harbor in their bilges or elsewhere the hibernating insects and repeat the tragedy of the *Susquehanna*, of 1858-9.

Besides explaining that these two great plagues depend upon a microscopic form of animal life, it should also be made clear that there is a very large class of disease, embracing many varieties, due to the development of a microscopic vegetation, the bacteria; and further, that a secondary group well recognized as contagious probably belongs to one class or the other, although it is not yet scientifically proven. A working scheme of the benefi-

cent, as well as the morbid, bacteria can easily be explained to an attentive audience in one lecture. This would not, and should not, involve demonstration under the microscope nor an exhibition of cultures, but should be an account of the rôle these micro-organisms play in nature for good and evil. The great difficulty in teaching non-technical students is to leave a clear impression without confusing detail, neither presupposing information which they do not possess nor wasting time over particulars which they can never use. It is useless to detail as a Professor of Military Hygiene, at either Academy, a medical officer because he is an excellent clinician, still less because he is a skilful surgeon. He must possess the didactic faculty and know how to teach; that is, what to omit and particularly how to impress the essential points. In the crowded curriculum no book will be sufficient by itself. He cannot depend simply or mainly upon a volume which will contain too much or too little, and the officer who has not the happy gift of imparting knowledge (which is entirely distinct from that of acquiring it) should not be given such a function, or, if inadvertently thus assigned, he should be promptly relieved. The object of laying a foundation in bacteriological knowledge is that, as officers of the line, the students may appreciate precautionary measures advised against the introduction or the extension of certain diseases. Thus it may be taught that however nasty one may conceive it to drink water contaminated with sewage, such water will not cause typhoid fever or cholera unless the specific bacteria are present; and, on the other hand, water sparkling with decomposing nitrites, acceptable to the eye and to the taste, may carry disease-causes. As the chemical analysis can never, and the physical analysis will with great difficulty if at all, demonstrate such bacteria in the water supply, they must understand that it is a question of probabilities whether or not any particular supply is infected. The course manifestly required is to prevent beyond question accession thereto of any dejecta, for if no waste goes into the water no infection from waste can be drunk. More than that, they must learn that typhoid bacteria, for example, are to be found in the urine of walking cases; hence such pollution in camp may be a specific sanitary evil, as well as an offense against decorum. And still further, it must be explained that insects, flies in particular, may convey upon their feet to the food or the table furniture particles of excreta over which they have crawled. Such almost invisible waste may be, and sometimes is, charged with

innumerable bacteria capable of introducing disease. This part of the subject is developed here in this moderate detail simply as an illustration. The point is that, learning these facts in his youth, a commanding officer of whatever grade will understand that an invisible peril visits any camp whenever a case of typhoid fever appears, and he will be less disposed to regard as chimerical apprehensions of its spread, or to neglect as superfluous precautions that may be recommended. The nature of this essay does not permit further discussion of the prevention of epidemics, but if some such elementary teaching is given then the way is prepared for the regulation of typhoid, cholera, the dysenteries, certain diarrhoeas, and other diseases due to the ingestion of their causes. In other words, the classes should be instructed, and instructed in a practical and enlightening way, that cholera is due neither to a cholera-cloud nor to eating green vegetables as such, that typhoid fever is not "catching" as scarlet fever is, but that the introduction of one case of either in the field will assuredly be followed by others without the extremest care is taken, and that one case in garrison or on shipboard, unless an outside origin can be demonstrated, should be the signal for the closest inspection not only of probable but of unsuspected sources, and should compel the strictest compliance with sanitary rules. Military hygiene does not, however, primarily concern itself with exceptional and epidemic conditions, into whose consideration we have been drawn merely to illustrate the desirability of explaining certain broad objective causes of disease and by inference their avoidance. Its essence is the constant and inconspicuous but vital supervision of troops.

The enlistment of intelligent, sound recruits, of good character and sufficient maturity, has been assumed. Physically the age of eighteen, when enlistment with the parents' consent is legal, is too young except for the field music and for apprentices for either service. Eighteen is well enough for the militia, for the drill is more easily learned, the recruit is more docile and is more apt to be ambitious to excel, and he is not likely to be required for the field. But should the uniformed militia be called out for war, a rigid inspection should eliminate every minor as such. The cadets must be taught that to disregard physical maturity, not merely obvious infirmity, is to invite physical failure under strain. It should be impressed that the undeveloped heart of youth, the heart whose size but not whose strength doubles in adolescence, is, like any other young muscle, easily ex-

hausted under continuous effort. In a less degree the voluntary muscles and the bones themselves are unprepared for prolonged exertion. This should be insisted upon, because the temptation is always strong to accept lads who already have a smattering of drill and would not be required to learn a new vocabulary, whereas sustained, not merely ephemeral, vigor is a *sine quâ non* for success in the field. Enlistment, or muster-in, having been effected, the responsible officer is to assure himself that aseptic vaccination has been carefully performed. The act itself is technical, but its preventive importance should be impressed upon the student as a type and the opportunity embraced to explain what vaccination has accomplished for the health of the world, what preventive inoculation against typhoid fever offers, and how the antitoxins of tetanus and diphtheria, those of cholera and plague, and quite at this writing the apparent discovery of one for spinal meningitis, lessen the range of general mortality. It is in such features that ordinary medicine and military hygiene overlap, and there should be taught neither expert manipulation nor in any detail the rationale of such service, but its possibilities are to be set forth; because while in civil life every citizen is a free agent to accept or to refuse such help, in military life it is entirely possible for an arbitrary commanding officer, not appreciating what may be achieved, to hamper if not to inhibit the work of the medical department among those not yet on sick report. Every opportunity, therefore, throughout the course should be seized to impress the importance of prevention, to show how disease may better be kept out than driven out.

The topics of military hygiene, the existence of a military force being assumed, have no necessary sequence. The various themes are disconnected, except as they have efficiency for a common object, and they may be taught in any convenient order. But in every case the successful teacher explains the theory, and also indicates the practice from his own experience or another's. What has happened always gives point to what may happen. In such a course military clothing would be one of the subjects and it should be discussed with reference to its general fitness, rather than by an analysis of the individual articles which may constitute the uniform at a particular period, although if time permits, their advantages or defects may also be made known. After the primitive ends of decency are subserved, the main object of clothing is to regulate bodily temperature through the escape or the retention of the heat generated

by the vital processes. The student is to be taught that clothing in itself is neither warm nor cool and does not create heat. A clothed statue out of the sun would be no warmer than one standing beside it unclothed. But when the atmospheric temperature is already high, comfort and health require radiation from the body; when it is low, the bodily heat must be conserved. Hence in tropical climates, or in very warm weather, the clothing should conduct bodily heat well and should not accumulate solar heat; that is, it should be of cotton or linen. But as perspiration, induced by exertion or by the state of the weather, is the main agency in the reduction of bodily heat, and as neither cotton nor linen takes up water well but soon becomes wet through, it follows that the consequent rapid evaporation of the perspiration keeps the body reasonably cool. That evaporation is unobjectionable while exertion is going on, for exertion is the source of the superfluous heat; but because perspiration persists for a time after exertion ceases, merely cotton clothes subject the wearer to serious risks, since even in the tropics one is exposed to lowered temperature at certain hours as well as to increased evaporation when in the wind. Therefore, a certain admixture of wool, which will absorb the moisture and condense the vapor of the body, is hygienically necessary in any climate for underclothing next to the chest and the abdomen. Besides its quality of absorbing perspiration, wool is an admirable non-conductor of heat, so that the heat which the body generates is not dissipated; hence the unfitness of an all-wool dress in warm latitudes and the reason for its use where the climate is cool. Although ultimately they would acquire the bald facts through empirical observation, these military pupils should learn the fundamental truths that they may not be misled by false theories, nor grope their way with no theory at all. They must understand why, even in the tropics, merely cotton clothes lead to congestions in the chest and the abdomen—to colds and diarrhœas—and that in such regions tight and heavy woollen clothing works hasty destruction, as in the fatal initial march of the British Ninety-eighth in the Chinese war of 1841, repeated in the same service in the Arrah expedition during the Indian Mutiny, whose disastrous outcome it caused. They should learn the reason as well as the fact that leather is said to “keep out” cold and furs to be acceptable where there is freezing sleet. They should also learn that where it is important to retain animal heat two layers of clothing, as two shirts or extra drawers, are more serviceable

than the same material in a single garment, on account of the layer of air between the double suits. Hence in severe climates two sizes of underwear may properly be issued to the same man. If as cadets they are well impressed with the characteristics of the different materials, they should, as officers in later life, understand what variations in the traditional clothing may safely be allowed. As animal odors are more readily absorbed by dark colors, clothing worn next the skin should be light in hue. The color of the outer clothing may definitely affect the wearer. In a hot sun—and much military service is directly in the sun's rays—black or dark blue fabrics become from ten to twelve degrees hotter than the white. The facility with which colors draw the hostile aim has a distinct bearing upon life. The determined visibility of objects has been classified in a scale; red, white, black, dark blue head the list, and all are modified by the background. The white horse of an officer has disclosed the position of an otherwise unobserved battery on the edge of a forest, and white cross-belts upon the scarlet coats of a picturesque garb will attract a flight of bullets. White is inconspicuous over snow, but for other reasons it would not be worn in a snowy region. The traditional green of riflemen might be the least noticeable against a leafy screen, the true khaki would not betray the wearer in a sandy desert, but speaking generally, the olive-drab actually issued probably harmonizes most serviceably with tree-trunks and distant fields. For active service the brilliant colors which excite admiration on parade must be taboo.

For the land forces a hygienic head-covering is the most difficult to design, and the foot-gear is the most important to the soldier, always assuming that the coat does not constrict. The head should not be too warm nor too cool, the hat should be inconspicuous in the field, it should be warm at night in bivouac, and be easily carried when not worn. These difficult conditions seem best fulfilled by a collapsible, fairly stiff, canvas hat, which may be lined for cold weather. However, this sketch is designed to be general, not one of items. Its purpose is to point out the important features of the subject, not to supply the details which is the province of the instructor, and the particulars just enumerated in relation to the head-covering are merely hints for the class-room course. As good feet are essential for all marching troops, so poor shoes disable them soonest; and time should be intelligently spent in emphasizing the care of the feet and the character of their covering. It would seem almost wasteful of

energy to explain the importance of an unconstricted chest, were it not that our army has but recently escaped from confinement for generations in coats designed to maintain the artificial rigidity so closely associated with the conventional soldier. A hunting shirt is the natural dress of a hunting man, and this now has been fairly modified into the field blouse or service coat of to-day, which may be taken as a good type if tailors are restrained from fitting it too closely to the figure. In very active service, or in action itself, the service coat might be entirely dispensed with for the time. Military trousers should be cut for utility in preference to beauty. They and the nether underclothing should be full in the seat and large over the knee. In theory and in serious fact when a campaign is on the utmost physical activity is required of a soldier, so that to hamper any joint or swelling muscle impairs exertion. The lecturer should not leave the impression that what happens to be the regulation dress at the time is necessarily final, for progress depends on discussion as well as upon experiment. He should lay down principles and leave the dovetailing of minutiae to others. The advantage of leggings in supporting the leg and ankle and in protecting against mud and dust, may be counterbalanced by their being extra pieces of clothing, by the liability of straps and buckles to break, and by the discomfort when breeches have to be worn without them. Multiplication of any part of a soldier's clothing or equipment is a doubtful policy, and it is conceivable that it would be more effective to make a slit in the lowest six inches of the trousers' leg so that when marching it may be buttoned tightly about the ankle. However that may be, the lectures on this part of the subject should explain not merely the nature of what United States soldiers happen to be wearing, but how they and other soldiers might be or are clothed, and particularly the principles by which the problem of military clothing is to be solved. It may be remarked in passing that the low-cut and rolling collar of the sailor appears to invite unnecessary disorders of the throat and chest, and that the extraordinary width of his trousers' legs, originally required for freedom of motion in going aloft, in its exaggeration about the ankles seems the barren relic of an antiquated form petrified into a fashion, rather than a natural shape of practical value. Sometimes conservatism is not a virtue.

The question of lodging, in its broad application, is both important and complicated. It is important because, in garrison

or in the field, the soldier is housed without election on his part in apartments where he must spend his nights and much of his days. It is complicated because, followed to the end, it involves questions of expense, of construction, and especially of health. The primary notion of a barrack was shelter from the weather. The crowded berth-deck of a man-of-war has been copied and outstripped in old West Indian quarters, where British soldiers slung their hammocks at night so close that many fairly touched each other, and consumption ravaged the command. Since the Civil War some of our own men have slept by sixes in three-tiered double bunks, in an atmosphere which long before morning was fœtid from insufficient ventilation or from none at all. In some foreign armies the dormitory is still the mess-room as well as the soldiers' living room. To this day in our own service, notwithstanding its multiplicity of apartments, the squad-room generally has a fixed capacity and the company is a variable content. A maximum company sometimes is allotted to the space designed for a minimum one. That temptation is very great. If there are men to be sheltered and there is floor-space—not sanitary area but actual floor-space—why not use it at first as an emergency relief, gradually continuing as a matter of course? Cadets must be taught that shelter, which is the chief reason for living under cover, is not a sufficient excuse for aërial poisoning. They must acquire as a preliminary enough elementary physiology to understand that the character of the blood in a very wide degree represents vitality, and that the degree of vitality depends upon the purity or the impurity of the inspired air, and that respiration involves the expulsion of poisonous waste into the atmosphere, as well as drawing air and what it may contain into the lungs. If the indoor air is pure and there is enough of it, it will be well with the body. But if the air is charged with expired invisible poison, necessarily re-breathed, then there is corresponding evil. Invisibility does not diminish noxiousness. The student should be taught that in temperate climates 600 feet air-space is the minimum, and also that a soldier confined in 600 feet air-space will die just as certainly, if not quite as quickly, as one in sixty feet, should not the expired air be carried off and the air for inspiration be renewed with sufficient frequency. That is to say, he must learn not only the more primitive methods of ventilation, but the essential reasons why ventilation as such is required. At the same time he should also learn that fresh air is not necessarily cold air, and, further and more important, that

the combustion of coal and gas and petroleum also contaminates the atmosphere, that restorer of the blood. The evils of the crowded tenements and sweat-shops of the cities only exaggerate what happens as surely, although happily more slowly, in an overcrowded barrack with the air-shafts clogged by a fresh-air coward who dreads catching cold, and in his fear takes that shorter way to acquire it. The military student must learn that the copious supply of pure air is as necessary for soldiers as for civilians, that every squad-room should have a fixed maximum of inmates to exceed which would be a breach of orders, and that attached surplus men should be assigned for sleeping to verandas in summer or to tents or portable huts in the inclement season. Except in battle (or in the necessary operations of actual war), it is criminal extravagance to waste the vigor of men. Certainly health and its resultant strength should not be pitted against dollars in peace, nor ever be sacrificed to anything except military success, least of all to ignorance. The principles, not the minutiae, or housing men should be inculcated, and collateral remarks upon the hygiene of cavalry stables would not be misplaced. A real cleanliness of the squad-room is to be assumed as a matter of course. Frequent lime-washing, occasional in-door painting, and freedom from dampness are to be insisted upon, with the reasons made clear. Neither the between-decks of a man-of-war or of a transport, nor the floor of a squad-room should be too sedulously scrubbed. Wet decks and floors are evils in themselves and conduce to rheumatism, to colds in the chest, to a general lowering of vitality and, when combined with darkness, facilitate the propagation of consumption and perhaps of other disease. Nor are soaked planks necessarily clean planks, and even when clean they are objectionable if saturated. The purity of the air at sea only indirectly mitigates the evils of overcrowding on shipboard. Their duties preserved the crews of the older navy from much of the harm of this congestion; but for the modern navy, a certain cramping of quarters, the heat, the lack of numerous ports, the pervasion of the turrets with noxious gases in gun-practice, and the dependence of the whole vessel upon forced ventilation make the problem of obtaining fresh air beyond the range of this course. But the increasing necessity for such air is not lessened by the difficulty in securing it. That necessity and the evils which follow when the air is not renewed should be emphasized in the teaching. The conditions on transports are different. On them in warm lati-

tudes, for hygienic reasons, the berth-deck is better evacuated except for sleeping at night, and in proper weather it should be flushed with fresh air through open ports and wind-sails. To occupy any berth by day should not be tolerated, except under specific authority of the medical officer in every individual case and on each particular occasion. In cool latitudes when the sea permits, the berth-deck should be emptied a large part of the time. Soldiers on shipboard and sailors on the ironclads, besides having stated drills, should be regularly exercised under supervision, and when the weather and the working of the ship allow, a large proportion of such passengers may properly bring their blankets on deck at tattoo. On transports the soldiers, and with special urgency the recruits, must be required, not merely permitted, to bathe at frequent intervals, and the feet and groins are to be washed daily with soap as well as water. At the extreme north barracks are to be secured against very low temperature, but not at the cost of overcrowding. A dozen men where six should live may be warmer, but they will not be healthier. The air-shafts need be neither as numerous nor large, because, owing to the difference in temperature, the air moves faster; but they must be kept open. White men require an adequate air-supply; and when at rest, particularly while sleeping, they should not be cold. In the tropics assigned space should be increased until, as one approaches the line, 150 square feet and 3000 cubic feet are not excessive near the sea level. From these hygienic teachings the student must be led to respect the general laws upon which they rest. In the tropics the atmospheric humidity at low altitudes is so great that the evaporation of perspiration does not easily establish an equilibrium in the bodily temperature; the air moves more sluggishly and at times is almost stagnant; and the pungent heat is intensified by the radiation from solid surfaces. Thus in India sheet-iron barracks, set up for greater convenience, have seriously affected comfort and may have impaired health. Tropical barracks should be arranged to exclude, not to admit, heat, and to allow the air to percolate through the walls. It may be more expensive in dollars to renew comparatively fragile or temporary structures, but it is economical in men, for, it must be explained, excessive heat is depressing as well as uncomfortable. The effect of superabundant, and especially tropical, light upon the fairer races is as yet a physiological problem rather than a hygienic precept; but it must be conceded that tropical dwellings and tropical duties

should be arranged to afford relief from glare as well as from heat. Hence, besides double roofs being desirable, broad verandas are essential. In the compulsory lack of verandas, the windows should be shielded by blinds hinged at the top and opening outward from the bottom, or by awnings. Complicated systems of artificial ventilation belong to civil engineering, not to elementary hygiene, but in explaining the requirements of ordinary barracks, the natural ventilation of buildings should be shown to depend on the movement of the air, due to differences in atmospheric temperature and to the opportunities for its escape as well as its ingress. In their very nature the casemates of permanent fortifications, formerly constantly used to lodge the garrison, are seldom hygienically habitable through darkness and dampness. The pathogenetic bacteria, especially those of consumption and diphtheria, thrive in such situations, but are destroyed by direct and prolonged sunlight quite as effectually, although not so rapidly, as by artificial germicides; and rheumatism, more and more distinctly recognized as derived from without, to whose development diet may supply a condition rather than a cause, would flourish in the dungeon-like gun-rooms. All dark and humid corners, should there be such, as there should not be, in common barracks are open, very much as those in casemates would be, to the same objection; and in buildings on damp soils, the lower story usually has a health record inferior to that of the one above. Each company officer should keep in his mind the relative position in the squad-room of all his men, and should repeated cases of sickness of any nature arise in contiguous men he should promptly advise the medical officer of that contiguity. This is particularly true concerning sore throats and common colds, which frequently spread from man to man. In this way local conditions may have special attention directed to them. A marked difference in the health of companies in the same garrison or camp usually has a question of company care and discipline, that is to say, of oversight, behind it. The class should be taught that underlying clay, except when thoroughly drained, is an unwholesome soil upon which to reside, and that in the northern hemisphere barracks and quarters should have a southern exposure, where any choice is possible. The subsoil and the exposure require attention for corrals and stables as well as for barracks. The extemporized field-barracks, sometimes raised for recruits or reinforcements at rendezvous, and too often retained with their original imperfections, should stand on dry ground,

have sufficient capacity, good ridge ventilation capable of modification at pleasure, tight floors, and competent surface drainage. The military student should be taught that such precaution in the care of newly-organized and hence particularly helpless troops more than compensates for the slightly increased expense and trouble. It should be impressed that all the conditions which maintain health as distinguished from restoring it, whether buildings, diet, equipment, or forms of duty, are methods of sanitation eminently within the province of the line. He is to learn that men transferred from the personal independence of civil life require instruction as well as control at every turn. It should be explained why rendezvous and other camps must be on dry or well-drained ground, and both the soil and the water-supply be immediately guarded against contamination; then, step by step, that the tents are to be floored if more than a week's stay is contemplated, and are to be ditched immediately upon being pitched; that men *must* sleep off the ground, if only by a few inches; if not floored then certainly, and if floored preferably, every tent should be moved back and forth, week by week, to an alternate site, so that the lived-upon ground may be freely exposed to the sun and air; except when hutted in winter quarters, the entire camp should occasionally be moved, if not more than a few hundred yards, to fresh soil; when hutted, whether floored or not, that peculiar care is to be taken to maintain the purity of the soil within the huts and about them; that in all camps and cantonments waste or refuse is a matter of particular concern; that in permanent camps about one-half the regulation occupancy of all canvas greater than a shelter tent is ample; that the swollen fibers of wet canvas are practically air-tight, so that other ventilation should be arranged during and after rains; that company streets are to be prepared to relieve formations from the mud, and dust is to be controlled by oiling or otherwise. These details may seem trifling in comparison with the great questions of supply, of transportation, of the disposal of waste, and in a sense they are. But trifles make perfection. Some of the work just outlined would squander time and energy if applied to every temporary camp, the canvassed bivouac of a moving column; but *per contra* this same disposition of time and energy is pre-eminently profitable in a camp of position, and little is so uncertain as the probable duration of any particular camp. Alike in the field and in garrison, when within range of malaria-bearing insects nets for the protection of exposed parts of the

person are to be provided and used; or, should that be impracticable, recourse must be had to applications deterrent to the mosquito. Where yellow fever occurs, such protection is indispensable. The reasons for all these are to be carefully explained and that to carry them out is a necessary discipline. The prospective company officer is to learn that he will stand *in loco parentis* toward his men, and when he attains field or higher rank, while he transfers the immediate responsibility to his juniors, he must see for himself that they both understand and exercise it. This immediate oversight is fundamental and practical hygiene, a principle for West Pointers and, *mutatis mutandis*, for Annapolitans to imbibe with the milk of Alma Mater. The great camps of extemporized armies which our wars call into hurried being afford those in command a wide field for practical sanitation. Unfortunately the past has supplied disastrous examples of what should not be done. Neither the regimental nor the brigade subdivisions of such camps should be overcrowded, mainly from risk of soil saturation. This is so obvious that it would seem absurd to make a point of it had not Chickamauga, for instance, in '98, shown regimental camps, some compressed, others fairly open, held immobile for weary successive weeks while broad acres were vacant all around. With even greater obviousness company sinks should be remote from their own or other company kitchens, because the inevitable fly will bear his filthy and it may be pestilential burden from one to the other. Not only have these annexes been found in close proximity, but shallow sinks have been installed on higher ground, so that storms have flooded their contents into a lower-lying camp. There has been such disregard of ordinary decency that, excepting with careful and tortuous selection, walking near a certain cavalry camp was impracticable and sixteen per cent. of the regiment had typhoid fever; while in another regiment of the same arm, efficiently commanded, less than three per cent. were thus infected. By such unfortunate instances an industrious lecturer may enforce the precept that commanding officers have no moral right to sacrifice their troops through ignorance or neglect.

On the alarm of war the camps where the new troops may first settle and "find" themselves should be of regimental, or at the most of a brigade capacity, in which to acquire the rudiments of camp life as well as elementary drill. These may gradually develop into division camps, and finally coalesce into one

of an army corps. But an army corps of recruits is a huge combination, difficult efficiently to maintain. We have poured, and we probably shall again pour, upon some central location a heterogeneous multitude of armed men, with no common quality beyond their uniform and their ignorance. Generals of brigade and division seeking to draw order out of relative chaos, new colonels without training but full of the consciousness of command, or familiar with the automatic operations of professional garrisons and dismayed at the rawness and inexperience of their twelve hundred volunteers, devote themselves in their respective grades to drill and to the more obvious tangles of administration, leaving such a commonplace as health, which for them has no peculiar military association, to the regimental medical officers who fancy they are "surgeons" and forget they should be sanitarians. The ease with which such camps are managed is inversely as their size, but the administrative argument against their multiplication and in favor of concentration is the difficulty of multiple purveying. The supply departments clamor for consolidation of effort. After all, in most respects, their physical prosperity rests with the men themselves as they comply with their officers' orders—the officers being promptly informed. Napoleon in a mood of unwonted candor attributed the unbroken success of the French arms to his captains of infantry, and it is even truer that the sanitary administration of any great camp or active army, and thus its physical efficiency depends upon the intelligent co-operation of the officers of the line. Those who are to become such officers must recognize, and be equipped for, that responsibility. During hostilities an undesirable location for a camp, and its prolonged occupation, may be required by military considerations which outweigh those of sanitation. In such a case health is to be expended like other material. But it should not be expended as a matter of course, like ammunition, for it cannot be promptly renewed and sometimes it is permanently wasted. Persistent deterioration may well outbalance the immediate success that it made possible. Thus, had the works at Yorktown been carried by assault when first encountered in April, 1862, the Army of the Potomac would probably have remained stronger than it was after their evacuation followed the four weeks' siege. Disease is always an ally of the enemy. The general must decide, but that he may decide intelligently he must recognize the conditions. Hence, it should be taught that the future physical fitness of the command is to

be risked only after an appreciation of the situation. These situations cannot be lectured upon in detail, for they are as various as the problems of chess; but the broad philosophy of military sanitation should be constantly kept before the classes.

The essentials of any camp, whether for recruits or seasoned soldiers, are reasonably dry ground, a good water-supply and facilities for the proper disposal of its waste. Only the most urgent military reasons condone residence on a damp site or one where an impermeable subsoil will retain water flowing upon it. As water must be drunk, as it is practically a universal solvent, and as it also may carry, unchanged, infecting disease-causes, its purity is of the first sanitary importance. The practical points to be insisted on to the class, are: (1) That appearance is no guide to the quality of water; (2) That no water-supply should be contaminated if avoidable (this is a duty to our allies and even to our enemies, as well as to ourselves); (3) That no unauthorized water should be drunk in its natural state (the more populous the territory, the more important this precept); (4) That all unverified water should be freshly and thoroughly boiled before being drunk. Here again the course must embrace principles, leaving details to circumstances. But it is to be iterated and reiterated that typhoid fever, cholera, and some forms of dysentery become epidemic through this agency when it is specifically contaminated. Illustrations of the general contamination of a water-supply, indirectly through the pollution of a watershed quite as well as directly and grossly, will present themselves abundantly to any sanitarian, who should impress it upon the class by one or more reports. But there should be careful discrimination between drinking-water polluted by ordinary waste and that infected by one of these specific diseases. The special reason for avoiding a solution of sewage is because a part of the waste *may*, not certainly does, proceed from some antecedent case. Unless there is that discrimination, the students may at some time doubt the teaching on learning of the accidental discharge of non-specific sewage into a well or cistern without the sequence of disease. The filthy habits that make every wayside rivulet liable to be charged with an invisible dysenteric poison should proscribe in the tropics all fluid not carefully boiled, unless drawn from a distilled or otherwise guaranteed official supply. The enforcement of such a regulation is so difficult and so important that the company officers, who are responsible, should have this clearly and forcibly instilled. Sometimes the

men, non-commissioned officers and all, must be literally stood over and watched to see that the water is boiled and the canteens are filled with it. Nor should this care be limited to the tropics, although there the requirement is greater; for there is risk of thus contracting typhoid fever, if not dysentery, in any populous rural district. Cadets should not be encouraged to believe that the essential purity of individual streams or wells can be determined by such examination as is possible in the advance of a mobile column or over the front of an army whose flanks may be twenty miles apart. That all raw water may be tainted should be an equal presumption with that of the unfriendliness of civilians in an enemy's country. Nevertheless, field analysis by active medical officers often determines its general character and is to be respected. The disposal of camp waste, the remains of food, of excreta, and of rubbish, is a problem which increases directly with the numbers involved. Cadets are to learn that in the presence of such waste lies not only disorder but the possibilities of disease. It must not be taught that refuse in itself creates disease but that it affords disease, for which it is a literal hot-bed, its opportunity. Once infected, and infection is easy, disease spreads, and specific bacteria may easily ravage a command from such harbors. Bilges of ships appear analogous to refuse heaps in so far as they may become offensive, but they cannot affect the water-supply. How far they may afford breeding-grounds for mosquitoes appears to be a matter of construction and of communication. Every precaution should be enjoined to avoid risk from decomposing waste ashore or afloat. At the end of the day's march every command, for its own sake and certainly for the sake of those who succeed it, should immediately establish well-defined pits for relief and others for kitchen sinks, and enforce their use. This becomes the more imperative as the regiments multiply. When camp is broken these receptacles should be filled in, for the care of the company sinks marks the state of discipline just as the character of the outhouses is an index of civilization. In permanent camps these matters are of added importance. It is not conceived that methods are desired in a paper like this, but it should be noted that, notwithstanding the Quartermaster's Department provides appliances for the reception, disinfection and removal of the fœcal discharges, it is practically impossible to equip a large army with a sufficient number of such conveniences for all situations, so that more primitive methods must always be auxiliary. Hence students must be impressed

with the importance of enough sinks and of their constant treatment with fresh earth, quicklime or ignited mineral oil. The chief, but not the only object, is to render the discharges innocuous, or at least inaccessible to flies. Upon leaving camp, or when new pits are dug, the old ones should be carefully filled and the sites marked. Where cholera is in camp or typhoid fever threatens as an epidemic, a sentinel should report every soldier who uses the sink more than twice a day; this because both cholera and typhoid fever begin with a painless diarrhea, and sometimes may thus be recognized in their earlier stages. Combustible rubbish should be burned, except when the smoke would give warning to the enemy. Incombustible rubbish should be gathered into heaps outside of camp lines, and tin cans before being piled should be flattened to occupy less space, and especially that they may contain no water for the breeding of mosquitoes.

The diet of an army is always a matter of concern. Like other able-bodied laborers, soldiers must have sufficient and physiologically acceptable food, and this should contain little waste, no unnecessary bulk, and the most of it be but slightly, if at all, affected by the lapse of time or in transportation. Manifestly such a diet is difficult to arrange, nor is it always secured. Under the stress of campaign some desirable sections must be temporarily omitted. It is less becoming, therefore, to worry pupils with the details of a ration which regulation or necessity may alter from time to time, than to discuss the essential character of the varieties of food. Nevertheless, the student at either Academy should be familiar with the components of the standard ration, on shipboard or in garrison, as an official and approximately physiological allowance, leaving its variants as for field, travel, emergency, arctic or tropical service to be studied on occasion. This branch of hygiene is chiefly applied physiology. The cadet should understand that the function of food is to yield energy and animal heat, as well as to supply material to replace worn bodily structures or to supplement others not expended. Manifestly the first step is the solution of the solid food and the next its transformation into the various living tissues. That is, it must be digestible and digested, assimilable and assimilated. In replacing expended tissue, in adding to body-weight, in supplying energy and in developing heat, the food is necessarily resolved into ultimate particles. It is not easily explained to the non-technical student just how these metamor-

phases occur. The cadet may be advised, as on reflection he will recognize must be the fact, that the effect of digestion is to change not merely the shape and appearance of the food, as ice changes into water, but also its constitution, as gun-powder resolves into constituent gases, in this instance into liquids. One need not go too curiously into the minutiae, but these primary fluids absorbed into the body and acted upon by agents already in the circulation, enter into multiple combinations which, with the perpetual disintegration of the animal tissues, constitute the very phenomena of life. In this case we are only concerned with securing the raw materials, not in following up the physiological processes, and happily nearly every article of food contains elements which play various parts. Hence it is not necessary to eat meat to obtain one result and bread to secure another and vegetables for a third, but judicious combinations will supply all the requirements. Such a combination, at the minimum of cost and with the maximum of efficiency and ease of handling would be a theoretical or typical ration. Thus, nervous energy depends upon the supply of nitrogen, and this essential element is found extensively in flesh, milk, bread and in plants of which beans and oats are types. With the addition of mineral substances and water these nitrogenous elements also make tissue. The starches, like flour and rice and potatoes, the sugars and the fats develop the muscular system, from which comes the working power. Animal fat is not derived from animal or vegetable fats or oils, but comes from starch and sugar; while sugar itself, although not a substitute for nitrogenous food, is also a marked producer of temporary energy. The mineral and vegetable salts, of which some are found in the other foods and some must be added, and water, complete the classes of material. Now besides substance, as visible to the eye, and nervous energy, as manifested in physical action and intellectual force, a fixed amount of bodily heat is necessary for life. Animal heat depends upon cell action, upon the disintegration and reconstruction of the secondary elements. Hence, as all movement multiplies such action as a condition of the expenditure it induces, bodily activity generates heat. Much of the heat generated by exertion is surplus, somewhat as the excess of steam which a highly-fired engine expends. But heat is necessary, even when bodily activity is at a minimum, of which an extreme example is the maintenance of life in hibernating animals, and so at every intermediate stage. Heat, then, is generated when certain foods which break

down more readily than others do thus disintegrate. These are, speaking generally, the fats and oils which hence constitute a conspicuous, but not the sole, class of fuel foods.

There are, therefore, the energy-making, the substance-making and the heat-making foods; but no food is exclusively of either class. Manifestly the food actually consumed should vary with and be adapted to the conditions under which life is carried on. The stock illustrations are the respective common diets of the Esquimaux and the tropical islanders, or of the Irish peasant whose staple is the potato, and the Indian of the pampas who subsists on dried lean beef. So, too, the laboratory value of food is often in excess of that which the human system can utilize. Thus the nutrient analysis of bran is high; its food value to man is nil. Again, as between races there is a variable coefficient to be reckoned with in the working of the digestive apparatus. The rice-eating Asiatic and the American farm laborer are not in the same class. In the judgment of the writer the important points for the young military student, that is for the cadet and midshipman, to master concerning articles of food, are: (1) That classes of food have predominating but not exclusive qualities; and (2) That they should be combined differently for different localities and duties. Consequent thereon he should accept the physiological fact that to live wholly upon one form of food puts a strain on the system in ridding itself of (excreting) the surplus of one element consumed while securing enough of another. He should learn the general doctrine that in cold climates fuel foods must be extensively used; in hot regions the starches and sugars are chiefly, not alone, required, their ratio to the nitrogenous group depending upon the exertion called forth; and that in temperate climates a mixed diet, varying with season and duty, should be supplied. As a matter of course he learns at once that, contrary to the vulgar belief, the ration as consumed is not a fixed and uniform allowance, a monotonous dole, but is a supply, variable in composition but equal in nutritive value, designed to fulfil by authorized substitution all the requirements of a dietary for an active life. It seems useless to burden the student with the details of the ration in its various permutations, or to do more than impress the principles of military food-supply. A study of the components, with reference to their best administration, to their modification, or to their substitution, becomes the officer's duty when he is actually associated with troops, but is not the

province of a cadet. Instead of such details he should be taught certain general facts: Thus, that all weights of food, except bread, are those of the uncooked items; that the bread is weighed cold, when it is lighter than when first baked, with the reasons why it is thus lighter and why it is then issued; that meat is not issued in individual parcels for the respective men, but in large sections, as quarters, to the companies or other considerable groups; that the available carcass is rather more than half the live weight in good cattle and may be less than half when the beef is poor, that there is a further loss from the bone, and a still further shrinkage in cooking; and that vegetables lose in cooking besides their necessary loss in preparation. He is also to learn that salted meat has less nutritive value than an equal weight when fresh, bacon excepted, but that it is usually issued in the ratio of three days to four because it is more easily preserved and transported, and he should learn the relative qualities of salt fish, salt beef, salt pork and bacon. He must also understand why it is undesirable to use salted provisions in excess, and what is the influence of fresh vegetables in counteracting the condition that thus would be induced. He must be warned that in campaign or on shipboard, where vegetables are most required, they are less likely to be plentiful, and he should learn why the vegetable acids or their salts are necessary under such privation, and which are the more desirable ones to use.

The foregoing is the very grammar of food-supply, which can scarcely be acquired too soon. Nor can too much pains be taken to impress upon the prospective officers of both services that the rank and file are more serviceable when well fed. It is very true that patriotism, or a controlling spirit, will keep men at the front on starvation rations or on practically none at all: witness Washington's camp of sacrifice at Valley Forge, and the heroic defenders of Petersburg under Lee. But it is also true that the want of food not only reduced the combatant ability of those Confederates who endured to the end, but that in the latter months of the Civil War it impelled wholesale desertions of men who had become physically exhausted. Pampering would be harmful, but food should be sufficient, nutritious and well prepared. The rock upon which the militia in active service so promptly go to pieces is their inability to feed themselves. An inefficient commissariat leads to much hardship with newly-raised troops, and little so conduces to straggling in the land forces and to discontent aboard ship as

insufficient or unpalatable food. This is a conspicuous factor in the loss of working power, while contentment and efficiency spring from a good mess. It therefore should be ingrained as a part of company administration that the men are to be carefully fed; not simply to have enough food issued, but that it should be in condition to be consumed with relish. To that end the officers should understand the principles of cookery, of which cooking is the application. Given opportunity, they should learn the theory of soup-making, of boiling, of baking miscalled roasting, of roasting proper, when frying may or may not be applicable, and of bread-making. These are more delicate arts than appear superficially, and actual interference in the company kitchen should be diplomatic rather than inconsiderate. The ability of the seasoned regular when detached to prepare his own food is one of the commonplace but important points of his superiority, and this art, in some danger of abeyance, should be fostered by company, not garrison, messes, and by frequent cook-house details, so that it may be completely popularized. Such instruction is not a part of the course in Hygiene, but the importance of its practice in the company should be an article of the general theory of sanitary administration with which the young graduate is to be equipped. Associated with this he should understand what the Company Fund and its management imply, and how by a wise liberality the War Department makes it possible to commute food into money for the purchase of other food, how legitimate barter may increase the range of the diet, and how a check is placed upon the sale of essentials, like fresh vegetables, and also how, usually speaking, it is the officers' fault if the men are not acceptably and efficiently nourished. The company officer should always remember that a poor table is constantly reflected in the sick report, as well as by indifferent service from men who are not technically sick. There are two practical points of food supply that the young officer should promptly learn. One, that the formal allowance of bread is insufficient for recruits, or for any troops not otherwise well fed; the other, that sugar is a valuable source of muscular energy. The exemplification of this is seen when new troops, under the stimulus of an outdoor life and irritated and enervated by the insufficient dietary of the camp before the ration is mastered, spend their pay and derange their digestion with other poor food. Properly prepared, the ration is always sufficient; but practically this change of diet operates as a deficiency. Deal-

ers in eatables within and upon the borders of camps take advantage of the situation and interfere so seriously with the men's health, through temptation of their juvenile appetites, that it is a safe general rule to forbid all such traffic. It may therefore be laid down that the presumption is always against those hucksters and in favor of restraining the men. This does not apply to the authorized purchase of staple food, cooked or uncooked, from reputable shops or across the countryside, but to the pies, sausages, cakes and the unripe or overripe fruit with which camps not carefully administered are often overrun. The source and character of any considerable milk-supply sought to be hawked in a permanent camp should be inspected as carefully as those of the water. It will be observed that the writer's theory of instruction in military hygiene, of which this question of subsistence gives a good illustration, is the constant inculcation of principles rather than by drilling with details, so that when specific and supplementary recommendations may be made by specialists, their significance will be the more readily appreciated.

Any serious discussion of military hygiene must take notice of two conditions which affect the health of soldiers and sailors, but are not incidental to the service in the sense of being caused by, or peculiar to, it. These are the venereal diseases and the abuse of alcohol. The moral aspect of both is entirely apart from their physical consequences, which are what concern us here. Experience shows that those men, not restrained by either caution or scruples, who consort with vicious women so frequently become diseased that the strength present for duty is thereby materially reduced. Of the three diseases thus communicated, two may be controlled with comparative certainty if treated intelligently. The third introduces a constitutional taint which may endanger innocent comrades by accidental inoculation, and more particularly requires years for eradication. Because these disabilities sometimes make a considerable percentage of the sick report, indignant company officers occasionally recommend that pay for the time thus lost should be forfeited. In one view it is reasonable to withhold pay from men who through vice disqualify themselves for duty. But under these conditions it would be short-sighted, because that would lead them to conceal the disease to the last moment and to seek relief by irregular and usually inadequate methods. The ultimate consequence would be greater loss of time and more serious disability. This ulterior condition and its gross effect upon the

health of the forces should be borne in mind in any attempt to penalize the men, because the primary object of every thing that bears upon the maintenance or the recovery of health is the augmentation of physical vigor, to which the financial situation is secondary. And further, although the sums thus saved to the Government would be very small, those lost by the soldiers would be relatively large and hence would tempt to mischievous concealment. Moreover, it may be considered that, although this disability would be contracted not in the line of duty, it would never be intentionally incurred, as in the case of self-maiming to escape service, so that the element of insubordination would be wanting as a motive. It therefore is to be distinctly understood that, in the interest of good policy, all such men should report for treatment without delay and be liable to punishment for neglecting to do so; but it would be bad procedure to take any punitive action against them because of incurring such disability. With the third of these diseases, true syphilis, the question of discharge without honor should be taken up at once with the presumption against the soldier. Syphilis is in itself so grave, its course is necessarily so protracted as compared with an enlistment, at a certain stage it is so liable to be transferred to innocent parties through pipes or table utensils, that it may be well relentlessly to cut off such men. In very exceptional cases leniency might be shown men of long service or on peculiar duty, but recruits and those whose military character is not above the average would much better revert at once to civil life. Although two of the venereal diseases are fairly amenable to medication, the three are so offensive and the acute form of one and the secondary state of another are so liable to infect the eyes or lips of the well, through soiled towels or contaminated implements, that it is good policy to cause all private soldiers to be inspected for these complaints before embarking on a crowded transport, and those affected to be detained for treatment. This examination should be repeated when a few days out and the new cases be segregated. It is unfair to the sound men to have these invalids thrust into their close companionship, and the ship's hospital is rarely adapted for the retention of more than a very few. Out of deference to their warrants and their presumed intelligence and self-respect, non-commissioned officers may be excepted from such investigation. Sailors drafted for a cruise should undergo the same precautionary inspection, and liberty men should be examined at the proper interval after returning

from shore leave, or be enjoined to report such disability immediately, as the state of discipline may warrant. It is through the exercise of such administrative control over the well who may become sick and the apparently well who may conceal sickness in connection with the venereal disorders, that those in training for command may be led to appreciate how intelligent discipline is interwoven with applied hygiene and that there should be cordial co-operation between the line and the medical corps, not only in precisely these particulars, which may be used as an illustration, but also under the wider requirements of general military sanitation.

The position of alcohol is another condition, not incidental to the service, but brought into relation with it by artificial qualifications or limitations, in which discipline proper and military hygiene run parallel if not commingled courses. The whole genius of the service tends to the maintenance of temperate vigor, and alcohol as a beverage has no necessary place in military life. In health, spirits are not only unnecessary but, except in minimum and almost inappreciable quantities, are harmful; so that, other conditions being equal, an abstinent army would be an ideal one. But the army must be recruited as best it may and from society as it is. It is not, and cannot be, enlisted from a peculiar order or caste. It represents the unskilled labor of the country, with a small percentage of mechanics and a still smaller number of indifferent clerks. Except that they are of selected physique, the men in the ranks, before being trained into habits of orderliness and subordination, represent the average of such men out of the ranks. They are in character, until elevated by discipline, precisely what the homes and institutions of our common country make them. A few are consistent total abstainers; the great majority drink beer when it is convenient; very few have scruples against taking a glass of whiskey as whiskey; some who have a positive desire for spirits have escaped the scrutiny of the recruiting officer. Their social instincts are not changed by the incident of enlistment. The writer believes unquestionably that an army without alcohol is healthier, more orderly, of far greater endurance and more trustworthy in every military emergency than it would be were spirits, or even malt liquor, within reach. He also believes that the drinking of alcohol in any form should be discouraged. But given the antecedent willingness and frequently the desire to drink in moderation, the risk of excess increases when it becomes impossible to

obtain a milder beverage under regulation, and the more dangerous liquors are temptingly accessible beyond the military pale. Frequently, if not generally, such drinking-places are disorderly houses in the widest sense, filled with dangers for men who there begin the facile descent that is so fatal to physical and moral health and destructive of all soldierly qualities. The obvious course to pursue would be the exclusion of spirits from camp and garrison and the regulation with discretion, not the discretion of a saloon-keeper but the judgment of an official, of the sale of malt liquors whose profits should revert to the Company Funds for application to their respective messes. Beer is not an ideal beverage, but it is so vastly superior to spirits which are always obtainable from civil sources (even in prohibition communities) that, as provided at a properly disciplined post, it is by comparison substantially innocuous. Good judgment would not discard the practical control of a minor ill in the visionary pursuit of a theoretical ideal. Unfortunately, however, this question has assumed a quasi-political aspect and as such has been legislated upon in response to a vehement foreign demand. It thus becomes a delicate matter to advise prospective officers that the laws they will be charged to obey are unreasonable. Nevertheless, they must be instructed in the military and sanitary value of the circumstances within which their men should live, and this may be done without implying more than imperfect knowledge of unfamiliar conditions in those who made these laws. Progress in legislation generally follows intelligent comment and discussion. Not very long ago whiskey was part of the regular ration in both the army and the navy, and flogging was an authorized punishment in both services. But it was not contumacious to hold such an issue to be detrimental to both health and discipline, or such punishment degrading and ultimately ineffectual. It has not been to the prejudice of good order to assert that particular military conditions should be changed, as that, for example, the ten-company organization was antiquated for regimental purposes. It is not offensive, it is laudable, plainly to represent the consequences of suppressing beer within the post as long as saloons are accessible beyond it, or where, as in the Philippines, *vino* will entrap the unwary. These young men should be made to see that there is a better way that leads to practical temperance, or at least away from gross dissipation, with the reasons therefor; but the lecturer, not the essayist, should formulate these reasons. Those who would abolish the

sale of beer to soldiers cite the navy afloat to support their contention, overlooking the conditions. All liquor, or for the matter of that anything, may be excluded from a ship, because the ship itself is inaccessible and, excepting when specifically given leave in port, the crew is confined to the vessel. The conditions, therefore, are not analogous. No camp or cantonment, nor any fort in peace, is thus isolated. Further, it is admitted that the privilege may degenerate into an abuse, as where with no appreciation of propriety it lapses into a trade-scheme to create a fund. But the possibility of its abuse is not a sufficient reason for abolishing instead of controlling a privilege. In a great camp the commercial spirit of raw volunteers and the indifference or weakness of the military authority have conspired to make one regiment beer-sellers for a brigade or more, with no pretense of a limit except that of the tipplers' purses. The unseemly disorder and squalor of the beer-tent easily excited disgust and also advertised the humiliation of the participants. That is not the legitimate operation of the Exchange, and it would be as unfair to forbid the regulated sale of beer because of such maladministration as to disarm a division because a company became riotous. Such a case requires careful inspection and impartial discipline, not arbitrary and general suppression. When the Exchange officer or the regimental commander cannot distinguish between legitimate favor and arrant commercialism, between intelligent and controlled gratification and the venal importunity or seduction of the bar, then the pressure of dignified authority should enforce the discrimination between indulgence which is reasonable and license which is scandalous.

A complete discussion of military hygiene should follow the soldier everywhere. It would take up the weights he should carry, and the method; his ordinary marches and the extraordinary, not merely the miles but the mode; it would remind the class that in raising rural regiments, weeks, perhaps months, of physical unfitness must be anticipated from the diseases of childhood, as measles and mumps, perhaps scarlet fever and whooping-cough, hitherto escaped through isolation, which then will spread in epidemics from some accidental case, while the urban regiments, immune through previous attack, will remain unaffected; that in every American camp of any continuance typhoid fever will occur, against whose extension all authority must be alert; that the longer a camp is occupied, except by seasoned troops under sanitary discipline of a high order, the more ill-

health there will be; that marching troops are healthy troops, with the reasons; that an old camp should never be reoccupied, and that barracks entered in succession should be scrubbed and lime-washed anew to destroy the almost inappreciable but real poison which every command generates for itself and leaves behind. The classes must learn that unnecessary exposure to torrid heat and to the tropical sun, especially through midday marches (made again and again in neglect or defiance of advice) are enervating, always debilitate, and frequently prostrate those thus exposed; and that the officers should organize and develop appropriate amusements for the men, especially when in winter quarters, where ennui and distressing nostalgia are closely associated. They should be led to appreciate that the duties of line officers are not confined to drill and formal occasions, but that their supervisory authority covers all the hours and all the concerns of the enlisted soldiery. When new troops are raised in later levies than the first, it should be for full terms, and generally they should be distributed among old regiments so as to absorb practical information from their experienced companions; for little is so wasteful as the constant repetition of identical errors and the laborious acquisition of proper methods through personal experiment. The enlistment of short-term regiments multiplies expense, inefficiency and ill-health, and sends men back to civil life just as they are learning to escape its limitations. In short, when the teacher is a soldier or a sailor at heart, as well as by commission, familiar with the terms which differentiate fighting men from the common herd, he should constantly keep in mind his fellow of the line and out of his special knowledge advise him how to maintain, under all conditions, that physical efficiency upon which everything else must depend.

The first results of this didactic course should be that the successive classes who acquire commissions, the annual groups who are graduated from the Academies, will recognize the medical staff of the two services as specialized comrades, heralds, and, if need be, aggressive forerunners to proclaim and mark out a route of military success, engaged in unobtrusive but hearty coalition in the more conspicuous work. The ideal medical officer is fundamentally at one with the other soldier or sailor who directly confronts the visible foe, and it will rest with the respective professors of this science to demonstrate that practical equality, which is not identity. When this is done, the newly-

graduated officers will be ready to hold the other members of the medical corps, those in garrison or afloat, in corresponding esteem until as individuals they forfeit it by displayed ignorance. This is a trifle, excepting so far as it opens the way for co-operative fellowship with those who sometimes are disposed to regard the medical officers as attached rather than incorporated, as allied and not inbred. Next it will happen that if the medical officers serving with troops find that these subalterns join their commands charged with the sanitary essentials, or at the least, realizing that there is a sanitary science, they should be stimulated to increase their own knowledge and be encouraged to apply its principles with greater zeal. Then the whole military mass will gradually but ultimately be permeated with that leaven. Coincidentally, the chair charged with this responsibility is lifted from the pitiable position of toleration, where its teaching has been damned with the faint praise of permission and whose graduation-value was tardily secured; and now it acquires a place of authority in the educational scheme by the knowledge of its subject being made compulsory and a prerequisite for a commission. As a required part of the official curriculum, military sanitation becomes a recognized feature of military science, so that this final recognition puts the mint-mark of authority on learning which always has had an intrinsic value, but not one previously acknowledged as coin in the military exchange. It is a practical result of the highest importance that the abstract subject is thus assigned a formal place in the schedule of military education, and the fact that it is taught by authority to the officers of the line advises both them and the public at large of its legitimate standing. The culminating practical result is that, enhanced by its new dignity and announced as a requirement, this art of military living, which is as old as the code of Moses, will assume and retain a place of dignity and usefulness, unless it should be betrayed in the house of its friends. With the opportunity to prove itself, it will stand or fall by its own record. Military sanitation will be acknowledged as more than a theory of the council; it will become a working branch of the military art, seemly and serviceable wherever fleets sail or armies tread. Respected by officers and enjoined upon the men these will gradually, but more and more generally, accept as a matter of course its principles and its practice, with the necessary consequences of reduced disability and added vigor. Spreading from the schools to the camps it will become a rule of life, with the grow-

ing hope that those who know the right will not the wrong pursue. Nor does it seem unreasonable to anticipate that the intelligent and zealous officers of the National Guard may follow this new departure to the common advantage of their commands and the country.

Prodesse quam conspici.



THE VICKSBURG CAMPAIGN.*

BY CAPTAIN CHARLES D. RHODES, SIXTH CAVALRY.

GOLD MEDALIST, M. S. I.



THE strategic influence of a great river, navigable throughout a group of hostile States, and permeating with its tributaries to the centers of supply, is enormous. From directions perpendicular to its length it forms an obstacle to be duly considered by friend or foe, while as a channel of communication, its influence upon military operations is still greater.

In the War of the Rebellion the great Mississippi was the aorta, so to speak, of the Southern Confederacy. Its undisputed possession by the Northern armies was the first great blow in that isolation of rebellious States, of which Sherman's march to the sea was the second and finishing stroke.

In keeping with a comprehensive plan, made possible by the assignment of a single commander to the theater of operations south of the Ohio River, the various Confederate posts on the Mississippi had one by one been captured or abandoned. By the end of June, 1862, the fortified city of Vicksburg was the only Confederate stronghold blocking the passage of the great waterway.[†]

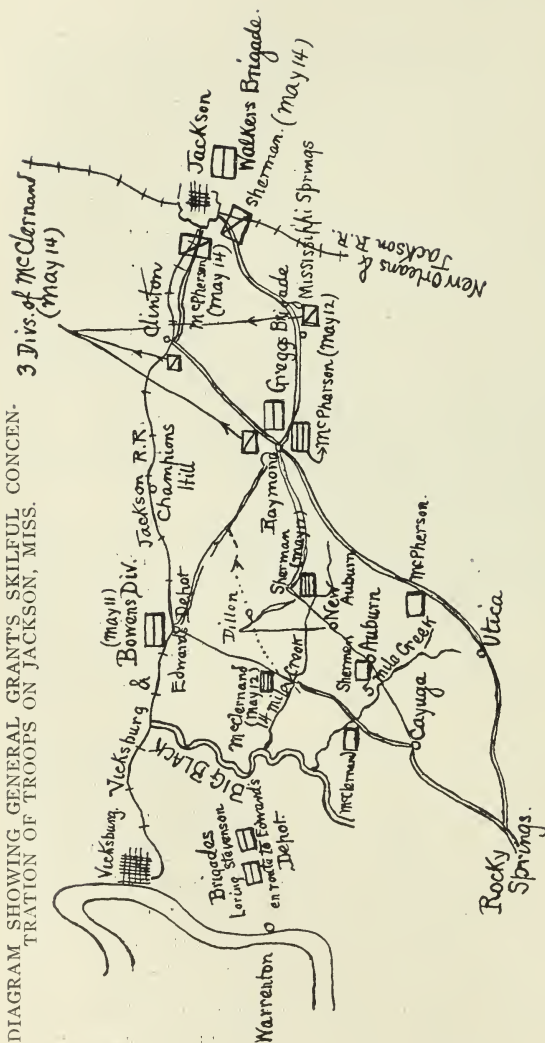
In the spring of that year Farragut's flotilla had attacked Vicksburg and had failed; and in the fall, Grant's movement against the city by way of Holly Springs, with Sherman co-operating from Memphis, had also been barren of results. Moreover, the Confederate government had begun to appreciate the importance of holding this vantage point on the river, and in November President Davis himself had visited and given his personal attention to affairs in Mississippi.[‡] On January 4, 1863, General McClelland had assumed formal command of what he was pleased to term the Army of the Mississippi, but so dissatisfied was General Grant with that officer's operations

*Graduation Thesis. Infantry and Cavalry School, 1907.

[†]Port Hudson was subsequently garrisoned, and the river held farther north.

[‡]Greene.

DIAGRAM SHOWING GENERAL GRANT'S SKILFUL CONCENTRATION OF TROOPS ON JACKSON, MISS.



Confederates May 11, 1863 (Showing the dispersion)

Union Forces May 12.

Union forces May 12.

Union forces concentrated on Jackson, May 14.

(McPherson and Sherman's corps attacking; McClernand's 3 Divs. held in reserve at strategic points)

in Arkansas, that on January 29th Grant assumed personal command of the forces operating against Vicksburg. It is his subsequent campaign, culminating on July 4th in the surrender of that city, that we shall follow and discuss.

The City of Vicksburg, 200 feet above the Mississippi, is built on the first high shore-line south of Memphis. Both above and below the city the river banks are intersected by numerous channels, or bayous, which form in places a veritable network of canals. At Vicksburg the river bends back upon itself in a huge loop, surrounding a marshy peninsula which is oftentimes partially or totally submerged.

East of the city the terrain is broken by a series of ravines and gullies, through the midst of which ran the single railroad to Jackson.

The problem confronting General Grant, at the outset, was how to place his army in such a position on the east bank of the river, as to invest the city from the land side. The navy promised to control the river.

When Grant took command at Young's Point* he had immediately at hand about 20,000 men, organized as the Thirteenth Corps under McClernand, and two brigades of Logan's division of the Seventeenth Corps—McPherson commanding. These were later reinforced by Crocker's division of the Seventeenth Corps and by the remainder of Logan's division. On May 7th Sherman's two divisions of the Fifteenth Corps joined Grant, bringing the latter's force up to 33,000 men. His entire army was organized into four army corps under McClernand, Sherman, McPherson and Hurlbut, and his return for the month of April, 1863, shows an effective strength of 50,068 men.

Opposed to Grant, the Confederate government had at Grand Gulf, Vicksburg, Jackson, Haynes's Bluff and dependencies about 50,000 men, under General Pemberton. The forces were therefore practically equal.†

McClernand's troops had begun the construction of a canal across the neck of the peninsula opposite Vicksburg, the idea being to allow the passage of Porter's fleet and transports to some point below Vicksburg. Rather against his better judgment, Grant allowed work on the canal to proceed, until high water and the Confederate batteries at Warrenton brought the project to an end.

*Young's Point was almost opposite Vicksburg, on the west bank.

†Greene.

Then came an expedition via Lake Providence and Bayou Macon which failed from natural difficulties; then the movement by way of Yazoo Pass, which was stopped by General Loring at Fort Pemberton, a cotton-bale fort at the junction of the Yazoo and Tallahatchie. Last of all of these unfortunate attempts to flank the Vicksburg defenses by a water route came that made by General Sherman and Admiral Porter via Steele's Bayou, which failed because of low water and obstructions in the river.

This was indeed a fateful period in Grant's career. His victory at Forts Henry and Donelson had brought him prominently before the public as a man who accomplished things. But now, for twelve months, public estimation, so fickle in its hero-worship, had received no further stimulus. Grant was beginning to be distrusted. So far, all his plans for taking Vicksburg had failed. Of methods still open to him, an assault on the works would lead to almost certain defeat; while he dared not face popular criticism by returning to Memphis, as Sherman advised, for a new advance by way of the Mississippi Central Railroad. He finally, in his extremity, determined upon the hazardous plan of finding a way to the rear of the city by crossing the Mississippi at some point below Vicksburg, cutting loose from his communication and "trusting to victory for his supplies" (Greene).

On the night of April 16, 1863, six gunboats and several transports of Porter's fleet ran the Confederate batteries at Vicksburg, and proceeded against Grand Gulf, some fifty miles below, on the east bank of the river. About April 21st a portion of Grant's army concentrated at New Carthage, thirty miles below Vicksburg, on the west bank, but as the place was found partly submerged, the troops had been moved by the 29th farther south to Hard Times. On the same date, the gunboats unsuccessfully attacked Grand Gulf, but that night succeeded in running the Confederate batteries. This resulted, the following day, in a concentration of troops and flotilla at Bruinsburg, some nine miles below Grand Gulf, on comparatively high ground. It was isolated from Grand Gulf by the navigable watercourse of Bayou Pierre, so that the Grand Gulf garrison could not oppose a Federal crossing except by marching via Port Gibson, where a bridge crossed the bayou.

Pemberton was completely mystified as to Grant's intentions, and believed the movement to be a feint. This turning

movement was furthermore minimized at this time by the excitement occasioned by General Grierson's cavalry raid through Mississippi, which left La Grange on April 17th, and reached Baton Rouge on May 2d.

PORT GIBSON.

Appreciating the advantage of securing the initiative, Grant made all haste at Bruinsburg to secure a firm foothold on the east bank of the river.

On April 30th McClernand's corps (18,000 men) and one division of the Seventeenth Corps were landed on Mississippi soil, and McClernand was pushed forward toward Port Gibson as soon as two days' rations (to last five days) and ammunition could be issued him.

The enemy under General Bowen reached Pierre Bayou bridge before the Federal troops, and McClernand gained touch south of that point, the night of April 30th.

On the following day McClernand found the Confederates, some 7000 or 8000 strong,* occupying a strong position athwart two ridge roads leading toward Port Gibson—the two being separated from each other, and protected on either flank by ravines filled with almost impenetrable vines and undergrowth.

Before noon the two Confederate brigades in position (Green's and Tracy's) were reinforced by a third brigade (Baldwin's) from Vicksburg.

The terrain required a division of McClernand's force, which weakened co-operation. The enemy made a stubborn resistance, especially against the advance of the Federal left. But about noon a portion of McPherson's corps arrived on the field, and late in the afternoon succeeded in enveloping the Confederate right flank. This, in connection with a frontal attack by Osterhaus, brought about the complete defeat of the Confederate right flank. The rest of the line soon followed in retreat.

Grant pursued to within two miles of Port Gibson, where the union troops bivouacked. The bridge over Pierre Bayou was burned by Green's brigade, but much to Grant's satisfaction no further attempt was made to contest his passage of this obstacle. The enemy stopped at Grand Gulf only long enough

*The Vicksburg Campaign (Grant), B. & L., Vol. 3, p. 496.

to blow up the guns and magazine, and then proceeded to Vicksburg.

McPherson pushed the retreating Confederates as far as Hankinson's Ferry, which he was ordered to hold; McClelland was held in support at Willow Springs. In front of the two corps were 17,000 of the enemy under Bowen, but the men were worn out and demoralized.

Grant's army left Bruinsburg with an average of but two days' rations, and this question of food supply was the most serious one which appeared to confront the Federal Army. The two advance corps were held at Hankinson's Ferry and Willow Springs until their rations could be increased to three, in haversacks. Future rations were supplied by the enemy's country in the form of beef, mutton, poultry, bacon, molasses and cornmeal. For lack of a wagon-train, all kinds of vehicles were impressed and used for the transportation of ammunition. But from Grand Gulf, Grant ordered the quartermaster at Young's Point to forward with the first supporting troops, 220 wagons loaded with commissaries. These supplies did not reach the army for nearly two weeks.

On May 6th Sherman arrived at Grand Gulf; Blair was ordered from Millikin's Bend to Grand Gulf; and Hurlbut, who commanded at Memphis, was directed to send Lauman's division and four additional regiments to Millikin's Bend.

RAYMOND.

Grant's next objective was to be the Vicksburg and Jackson Railroad, with a view to cutting communication between those places, and preventing or minimizing a concentration, which it was natural to suppose Pemberton was now effecting.

One wing of the army was therefore moved toward Edward's Station on the railroad, while the other felt toward the town of Raymond, partly for the purpose of securing contact with the enemy in the direction of Jackson and partly to secure rations, of which the army stood in great need.

By the night of May 7th both McClelland's and McPherson's corps were at Rocky Springs. From the latter point two nearly parallel roads ran northeastward, one eventually reaching Edward's Station and the other Raymond, about twenty-four miles distant. A third, middle, road ran between the other two, branching at Cayuga, and reaching the town of Auburn. (See sketch.)

As exemplifying Grant's methods in this campaign, the advance of his three army corps from Rocky Springs to Raymond, and later to Jackson, is typical. McPherson moved on the southern road, McClernand on northern road, while Sherman on the middle road was in position to promptly reinforce either wing.

Meanwhile, on May 1st, Pemberton had apprised Gen. Joseph E. Johnston, at Tullahoma, of Grant's crossing to the east bank of the Mississippi. Johnston immediately advised Pemberton to unite his forces, even if certain important points had to be abandoned to do so. Pemberton, however, shared an opinion, said to have been held by President Davis—that Grant's army could not long exist away from the river.

Pemberton therefore directed troops *en route* from South Carolina and Port Hudson to be debarked at Jackson, to resist a possible raid against the capital of the State. He, himself, with the divisions of Bowen, Stevenson and Loring, determined to contest the passage of the Big Black—so confident was he that Grant would head toward Warrenton and Vicksburg. He therefore made the fatal mistake of suffering his army to remain divided in the near presence of the enemy.

As Grant's right wing under McPherson reached forward toward Raymond, it came in touch with the Confederate troops under General Gregg, some 5000 strong, with two batteries, which had come up from Port Hudson. Gregg was covering Jackson with a view also of striking Grant in flank, should the latter turn toward Edward's Station.

Logan's division assaulted the Confederate position, with Crocker in support. The enemy was swept from the field, and retreated toward Jackson.

Up to this point Grant had been carefully feeling his way. His entire cavalry force consisted of but one regiment, and in an enemy's country information secured from the inhabitants was usually unreliable. Therefore many of Grant's conclusions were perforce gained by actual contact with the enemy. In fact, Grant states that at the time of McPherson's victory at Raymond, "Pemberton was on my left with, as I supposed, about 18,000 men; in fact, as I learned afterwards, with nearly 50,000."*

This latter statement is not strictly correct. Pemberton had about this time 50,000 men for the defense of the Vicksburg-

*Battles and Leaders. Vol. 3, page 503.

Jackson line, but they were so scattered that the forces on the Federal flanks were each inferior to Grant's concentrated army.*

JACKSON.

However, in the advance toward Edward's Station both McClernand and Sherman had encountered considerable numbers of the enemy along Fourteen-Mile Creek; and on the same date McPherson met with the determined resistance by Gregg's troops at Raymond.

Grant's conclusion was that he had interposed between considerable bodies of the enemy, and that Jackson, an important railroad center, was doubtless occupied by a large part of this disunited force. He, therefore, decided promptly to push his right wing and general reserve direct upon Jackson, and change the direction of march of his left wing so as to follow the two other corps.

Accordingly, McPherson moved on Jackson, May 13th, via Clinton; Sherman on the same city on the same date, via the southern road through Raymond and Mississippi Springs; while McClernand skilfully withdrew his corps from the presence of the enemy between Fourteen-Mile Creek and Edward's Station, and moved via Dillon to Raymond. Here one division was retained, ready to reinforce either Sherman or McPherson; one was sent to Clinton to support McPherson and the third took position at Mississippi Springs, in support of Sherman. Should Pemberton move against Grant's rear, McClernand was in position to meet him, and two additional Federal divisions were within one day's march, southwest of him.

Meanwhile Gen. Joseph E. Johnston had arrived at Jackson the night of May 13th, and has assumed command of the troops there. It did not take him long to grasp a situation which Pemberton either could not or would not comprehend. Johnston at once sent a despatch to Pemberton, informing him that even then a Federal corps was between them, and urging him to promptly strike Grant's rear with all available troops. Pemberton, as we shall see, disobeyed the orders of his superior.

Johnston had 11,000 men in Jackson, organized into the two brigades of Gregg and Walker.† They were first met by the

*Greene states that about this time Pemberton had 23,000 men near Edward's Sta., 9000 in Vicksburg, 12,000 at Jackson, and 5000 reinforcements en route.

†B. & L. (General Grant), Vol. 3, page 505. Greene says there were 12,000 Confederates in Jackson.

Federal troops more than two miles outside the main defenses of Jackson, on high ground commanding the approaches. Gregg had intrenched across the Raymond road, opposing Sherman; Walker occupied a fine position athwart the Clinton road, facing McPherson.

Although Walker made considerable show of resistance, Crocker's division of McPherson's corps had little difficulty in driving the opposing force within the principal works. On the Union right, Gregg made little opposition to Sherman's advance. Johnston was withdrawing his troops from the main defenses, when Tuttle's and Crocker's divisions advanced so closely that seventeen guns fell into the hands of the assaulting troops. Both victorious corps entered the capital between three and four o'clock in the afternoon. Johnston retreated on the Canton road, and bivouacked only six miles north of Jackson. Here he wrote Pemberton, urging him to cut Grant's communications. Grant, as we know, had severed his communications.

To Johnston's first communication, suggesting that Pemberton move to Clinton and attack Sherman's (McPherson's) corps, Pemberton had replied: "I do not think you fully comprehend the position that Vicksburg will be left in; but I comply at once with your order." Pemberton then reconsidered his decision, called a council of war, and finally determined to utterly disregard Johnston's instructions, and instead, to move against the Federal communications. Then instead of moving vigorously, he remained nearly passive until the 16th instant, when he received orders from Johnston to proceed toward Clinton and unite their forces. This order he started to obey.

CHAMPION'S HILL

While in Jackson, Grant learned of Johnston's order to Pemberton to move against the rear of the Federal Army. Grant at once prepared to concentrate against Pemberton before a junction could be effected between his force and Johnston's.

Sherman's two divisions were left at Jackson to destroy its usefulness as a railroad center and manufactory of military supplies for the Confederate government; McPherson was ordered to Bolton on the Vicksburg and Jackson Railroad, west of Clinton. To McClernand Grant wrote: "It is evidently the design of the enemy (Johnston) to get north of us and cross the Big Black and beat us into Vicksburg. Turn all your forces toward Bolton, and make all despatch in getting there."

Blair's division of Sherman's corps had joined McClernand on the 14th instant, with 200 wagons loaded with commissaries from Young's Point. To him, Grant wrote in similar vein.

The new concentration was speedily effected. McPherson's corps and one division of McClernand's corps moved on Bolton, parallel to the railroad; the other divisions of the latter corps moved through Raymond by various connecting roads, toward Champion's Hill, between Bolton and Edward's Station. By the night of May 15th these troops were at or near Bolton, and Grant had seven divisions (32,000 men) within close supporting distance.*

The following morning, on the strength of information that Pemberton was moving to attack him with 25,000 men, Grant sent urgent orders to Sherman to concentrate at Bolton. Hovey's division was advanced toward Champion's Hill, with McPherson in support; while McClernand was to move cautiously in the same direction—Blair's and A. J. Smith's divisions via the Auburn-Edward's Station road; and Osterhaus' and Carr's divisions by a "middle road" farther north.

As has been stated, Pemberton had decided on the 18th instant to obey Johnston's order to concentrate, but it was now too late. Grant's army, well in hand, was close upon him, although from lack of cavalry both commanders seem to have been lamentably ignorant of the exact position and strength of the other.

The position taken up by Pemberton was at Champion's Hill, facing nearly east. It was a ridge seventy to eighty feet in height, lying between Baker's Creek on the north and west, and a tributary or ravine of the same watercourse on the east.

The position was approached from the east and southeast by three nearly parallel roads: the northern road, used by the divisions of Hovey, Logan and Crocker; the middle road, on which we have seen were Carr's and Osterhaus' divisions, and which skirted the southern part of the position, and the southern road, occupied by Blair's and A. J. Smith's divisions, which cut the enemy's line of retreat at Edward's Station.

Champion's Hill was steep and rugged and partly covered with timber.

The battle was practically fought by the divisions advancing on the northern road, for although McClernand's divisions met

*Greene, page 152.

the enemy's pickets as early as 7 A. M., he failed to materially advance throughout the day.

By 11 o'clock the skirmishing had developed into a battle. Hovey on the northern road first struck the enemy's left; Logan pushed past Hovey and enveloped the Confederate left flank; Crocker followed in rear, reinforcing Hovey and filling in the gap between Hovey and Logan. The enemy was routed, and the pursuit was continued until night. Bowen's and Stevenson's divisions did not stop until they reached the Big Black; Loring's division, which had the right of the Confederate line, was forced southward to Crystal Springs, twenty-five miles below Jackson. It never reached Vicksburg, but subsequently joined Jackson. Had McClelland's troops pushed their attack, Pemberton's contracted line of retreat must have been closed and his entire army captured.

Grant's plan of interposing between Johnston and Pemberton had succeeded. Even now the latter might have crossed the Big Black, moved north along its west bank, and by a circuitous route have joined Johnston. This is what Grant says Johnston would have done had he been in Pemberton's place. But this would have involved the abandonment of Vicksburg, and Pemberton's one controlling idea was never to expose that stronghold to capture.

BATTLE OF BLACK RIVER BRIDGE.

Grant now directed Sherman to advance from Bolton to Bridgeport on the Big Black, where Blair was to meet him with a pontoon train. This movement was for the purpose of flanking the railroad bridge over the Big Black and turning Pemberton's position in case he opposed the crossing of the river. It was also designed to give Sherman control over the peninsula between the Yazoo and Big Black Rivers.*

On the 17th of May Carr's division continued the pursuit, followed by the division of Osterhaus, with McPherson in support.

Pemberton had taken up a position, it was learned, in a bend of the Big Black, covering the railroad bridge. The western bank was here a high bluff, commanding the eastern bank, but was unoccupied by troops. The eastern bank was low and cultivated—the loop which bounded Pemberton's position being

*Sherman's Memoirs, Vol. I, page 352.

separated from the main land by a wooded bayou, filled with a few feet of water. The trees had been felled as abatis; a parapet had been constructed of cotton bales covered with earth; and in rear of the main works was a levee near the river bank, available as a second line of defense. On the right flank was considerable timber.

The river was at this time too high to be forded, and the enemy's single line of retreat was across the railroad bridge, which had been planked.

The Union attack was of necessity frontal, Carr's division being deployed on the right and Osterhaus on the left, with McPherson's entire corps held in column on the main center road as a general reserve.

The enemy made but little resistance and fled precipitately. During the retreat the bridge was burned, and many Confederates were drowned in attempting to escape. The destruction of the bridge prevented prompt pursuit, but on the morning of the 18th three improvised bridges had been constructed. It was to no purpose, however, for on that date Pemberton and his demoralized troops were safe within the defenses of Vicksburg.

On that very date Johnston wrote Pemberton: "If Haynes's Bluff is untenable, Vicksburg is of no value and cannot be held. If, therefore, you are invested in Vicksburg, you must ultimately surrender. If it is not too late, evacuate Vicksburg and its dependencies and march to the northeast."

Johnston's advice fell upon deaf or unwilling ears.

VICKSBURG.

The crossing of the Mississippi by Grant's army had taken place April 30th. On May 18th he had three army corps investing the City of Vicksburg.

Sherman occupied the right, from the high ground overlooking the Yazoo to McPherson's right; the latter held the center, on both sides of the Vicksburg-Jackson road; McClernand prolonged the investing line to the left in the direction of Warren-ton.

This preliminary investment covered but three-fourths of the Confederate works.* So that, partly to gain more advanced positions, and partly because the army believed the enemy would not make determined resistance, an assault on the enemy's works was ordered for the afternoon of May 19th.

*Sherman's Memoirs, Vol. I, page 355.

Except to secure more favorable positions for the Federal troops, the assault failed. The works were strongly manned and desperately defended.

Johnston was but fifty miles in rear of the investing troops, with a not much inferior army, and was being reinforced from Bragg's army. Consequently, General Grant was anxious lest Johnston attempt to raise the siege. He also greatly desired to release the army for other operations. A second assault was therefore ordered for 10 A. M., on the 22d instant, the attack to be supported by the navy.

Again the assault failed. Grant felt assured of its inefficacy by 11 o'clock in the morning; but yielding to repeated requests from McClernand that it be continued, based on statements that he was occupying a portion of the enemy's works, the assault was renewed. It was to no purpose, and only developed the fact that McClernand's corps was merely occupying one or two outlying lunettes.* This matter, together with certain insubordinate criticisms growing out of it, led to McClernand's relief from command—General Ord succeeding him on June 18th.

Thus ended the last general assault upon Vicksburg.

General Grant and his army now settled down to an investment by regular siege operations.

During the interval between May 19th and 20th, a base of supplies had been established on the Yazoo River near Steele's Bayou, and roads were completed from the river and Chickasaw Bayou, around the rear of the investing army. Rations, ammunition, tents and cooking utensils were brought up, and ground cleared for camps. The campaign was henceforth to be one in which starvation and the intrenching tool were to be the principal weapons.

As has already been briefly noted, the ground about Vicksburg is well suited for defense. The ridge which encircles the city on the east is more than 200 feet above the Mississippi at its northern point, a mile above the town; and thence swings around south and southwest to a point three miles below Vicksburg, where Stout's Bayou and the marshes of the Mississippi bottoms formed natural obstacles.

The enemy's line of works formed the side of an irregular polygon, about five miles in length from north to south; the extreme eastern salient was two miles from the Mississippi. The

*Sherman's Memoirs, Vol. I, page 353.

line of parapet was seven or eight miles in length, and was in general twenty-feet thick, ten feet high, and with a seven-foot ditch. It was defended by 128 guns,* thirty-six of which were siege guns, and about 20,000 men, or nearly two men per yard of parapet. Stevenson's division held the right of the Confederate line, M. L. Smith's the left, and Forney's the center.

Surrounding the Confederate works, and at no point more than 600 yards distant, the Federal line of works extended for fifteen miles, or more than double that of the enemy's parapet. The terrain involving both lines of works was cut by innumerable ravines and gullies, so that the line consisted of an almost continuous succession of small lunettes and redans, broken only by Stout's Bayou and Glass Bayou. The Federal artillery was augmented by heavy guns from the fleet, so that by June 30th the investing army had 220 guns in position.

Between June 3d and 20th, Grant's army was reinforced by Gen. Sooy Smith's division from Hurlbut's command, Herron's division from the Department of the Missouri and two divisions under General Parke from Burnside's corps. By the end of June Grant had 71,141 men, of which more than half were on the peninsula between the Yazoo and Big Black, in anticipation of an attack by Johnston.

On June 22d word had been received that this general had crossed the Big Black, and from the best obtainable information, had 30,000 or 40,000 men.†

Johnston was a general of recognized ability, and Grant promptly ordered Sherman to take command of the Federal troops near Haynes's Bluff, and directed Herron's and A. J. Smith's divisions to hold themselves in readiness to reinforce Sherman.

Although the Richmond authorities were continually urging him to move out to Pemberton's relief, Johnston hesitated about assuming the offensive. Finally, when on June 22d he ordered an advance, and moved to Birdsong's Ferry, his operations were not only ineffective against Vicksburg, but he and his army narrowly escaped capture by Sherman after the capitulation of that city. Only a rapid march by way of Jackson saved him.

Meanwhile, the Federal trenches had been pushed steadily

*In addition, the Confederates had thirty-one siege guns and thirteen field-guns mounted in water batteries.

†Sherman's Memoirs, Vol. I, page 357.

Greene gives Johnston's actual strength as 31,226 and his paper strength as 54,747 men.

forward. Three saps had been run to the enemy's lines, opposite Ransom's brigade, and by June 25th the parapet had been mined and exploded. Another mine was exploded July 1st. Both failed to create breaches large enough for an assaulting column. It was, therefore, determined to explode no more mines until by simultaneous mines at many different points sufficient breaches could be made to warrant a general assault.

By July 1st the Federal approaches had reached points within from five to one hundred yards of the enemy, and accordingly orders were issued to prepare for a general assault on July 6th.

But on the 3d instant white flags appeared on a portion of the enemy's works, and hostilities were suspended. Negotiations for the surrender of the city were at once entered upon, and at 10 o'clock A. M., July 4, 1863, the Vicksburg garrison marched out in front of their works, stacked their arms, and returned to the city, preparatory to being paroled. Thirty-one thousand Confederates laid down their arms.*

The garrison was found to be on reduced rations, but not to the point of starvation; ammunition was deficient, and about 7000 men were in the hospitals. The defenders were physically exhausted and mentally discouraged.

The final result of this campaign, coinciding as it did with the Union victory at Gettysburg, marked a turning point in the fortunes of the Northern armies, and the commencement of the dissolution of the Southern Confederacy.

COMMENTS.

The Vicksburg campaign is well worthy of study by the military student of any nation. But it may especially serve as an object lesson to Americans, who as a nation are only too prone to minimize the effect upon military operations of scientific handling of troops and studious attention to detail. The investment of Vicksburg by a turning movement to the south is an example of regular strategy; the interposition between Johnston and Pemberton, and their defeat in detail, is typical of tactical strategy; and the capture of the capital of a rebellious State is an instance of political strategy.

Briefly, the campaign teaches that it is not impossible for a bold and enterprising commander to cut loose from his com-

*Greene, page 207.

Badeau gives the number as 32,000 Confederates.

munications and live upon an enemy's country; but the incapacity of Pemberton as an opponent is a factor which must be duly considered by the student. Had Pemberton moved upon Grant's rear in conjunction with Johnston's defense of Jackson, their united efforts might have proven embarrassing.

With a hostile supporting army nearly equal to his own, Grant wisely concluded that the quickest way to reduce Vicksburg was to beat the hostile army first and invest the city afterwards. In carrying out this turning movement, Grant appreciated the importance of initiative; Pemberton depreciated it. Port Gibson was a key-point to Grant's subsequent advance, and yet his crossing of the Mississippi was scarcely opposed.

The Federal troops were always kept well in hand. In the advance from Rocky Springs upon Raymond, Jackson, Champion's Hill and Black River Bridge, skilful use was made of parallel or converging roads, with a strong reserve in rear ready to be launched to the threatened point. Pemberton's scattered forces worked at cross purposes, and unable to effect a concentration, were one by one defeated in detail.

Tactically, the battles fought by Grant and his efficient lieutenants, Sherman and McPherson, exemplify the successful envelopment of a flank, in connection with a secondary frontal attack. Scarcely a battle was fought in which it was not used, and at Champion's Hill it enabled 15,000 men to put to total rout an opposing force of 23,000 to 25,000.

Both sides suffered from lack of cavalry, but it was a greater drawback to the Federal army, because, being in an enemy's country, its intelligence service was chiefly dependent upon reconnaissance. Although Pemberton constantly complained of his weakness in cavalry, he could have done little or no damage to Grant's communications, for the latter had abandoned them; but Pemberton might have caused considerable annoyance to Blair's division and Ransom's brigade, which brought Grant's wagon train from Grand Gulf. Had Pemberton not feared to uncover Vicksburg, he might have fallen upon these reinforcements and destroyed them before Grant, with his poor information service, could have realized what had happened.

In the first eighteen days of the campaign, Grant's little army, with but five days' regular rations, had marched 200 miles and had defeated the enemy in five separate encounters, driving him ultimately within the defenses of Vicksburg, where, a month and a half later, he surrendered. Grant's total losses were less than

10,000 men—many of them but temporarily disabled. The net losses to the Confederates were over 46,000 men, 60,000 small arms and 260 cannon.*

Just as military expeditions over sea require command of the sea, it is well to bear in mind that a strategical movement by way of a great waterway requires naval control to insure success. Without the efficient co-operation of Admiral Porter's fleet, the successful initiation and consummation of the Vicksburg campaign would have been impossible.

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The Mississippi River (Greene).
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*Greene, pages 170 and 208.





The Graphic.

MOORS MAKING A DASH FOR LIBERTY.

In the battle near Casablanca, General Drude, with a force of 4000 men, attempted to surprise the enemy at daybreak and break up their camp before the concentration of the Kabyles became a real danger. But the Moors are early risers (writes the special correspondent of the *Daily Telegraph*), and just as they were nearly surrounded they became aware of the presence of the French. They jumped immediately on their horses, galloping out of the rat-trap which the French was making for them.

Drawn by Anton Woodville.

A STUDY OF THE CONDITIONS OF WARFARE IN NORTHEASTERN MOROCCO.*

By MAURICE F. DE LA RUE-BARNEVILLE.



THE trouble which for the last few years has been brewing between France and Morocco has at last come to a climax where diplomacy must withdraw to the back ground to let the army settle the dispute. Not that the government of the Sultan is much to be blamed for the last violation of frontier committed by tribesmen, who have never recognized the Maghzen's authority or paid any taxes; but the perpetual succession of similar attacks either on Algerian-protected tribes or on military posts has been considered as an undeniable proof that the Sultan is unable to gain control over the tribes of the "bled es-siba" or "country of liberty," otherwise the independent tribes.

France, therefore, has to supply her own police force along the frontier to check any violation of territory; this police duty is performed by detachments of irregular cavalry (*goum*) encamped at various points on the frontier and under the orders of the "bureau arabe." The duty of officers belonging to the "bureau arabe" is to settle all disputes between tribes, and report any disturbance on the Moroccan side of the border. By the treaty of 1845, which determined about 100 miles of the Moroccan-Algerian frontier, from Cadjeroud to Teniet-Sassi, the French have the right to follow and punish in Morocco any tribe which has created disturbance on the Algerian side. This is what the French call *droit de suite*, and it is under this stipulation of the treaty of 1845 that they can to-day send an expedition against the Beni-Snassen without the Moroccan Government taking offense at it.

The immediate cause of the present disturbance was an attack made on the 7th of November, 1907, on a French reconnoitering party near Oudjda. The aggressors were men of the Beni-Snassen, one of the most warlike tribes of Eastern Morocco; they occupy the mountainous region, which is bordered on the north by the Mediterranean Sea, on the west by the Mou-

*Insurrection of the Beni-Snassen tribes.

louya River, on the south by the plain of the Angads, and on the east by the Algerian frontier.

The Beni-Snassen are Berbers, that is aborigines; the territory in which they are settled is rich and has many rivers and springs; there grow orange and fig trees in abundance, and the fields of barley are the main riches of the Beni-Snassen in the vast plains of Ouled-Mansour and Attias. Being farmers, the Beni-Snassen are sedentary and live in their mountains in coarse brick and mud houses, fortifying their villages with walls of the same materials. There they live an independent life under the sovereignty of their "Kaïds" or village chiefs; they are prosperous and fairly well armed, and for years they have paid no taxes to the Moroccan Government.

They are divided into four groups, known as Beni-Mengouch, Beni-Attig, Beni-Ourimech and Beni-Khaled, while a fraction settled in the plain along the Oued Kiss takes the name of Attias.

The total number of warriors which the four tribes can muster is about 12,000, of which 3000 horsemen are supplied mostly by the Beni-Khaled.

In 1859, an expedition under General de Martimprey was sent against the Beni-Snassen, and after a good deal of hardship and hard fighting was recalled on account of an epidemic of typhoid which spread among the men, caused by the poisoning of the springs and wells by the Arabs. General de Martimprey was one of the first to succumb.

In 1903, when the Sultan wanted to send his troops from the Kasbah of Saïdia to Oudjda through the Beni-Snassen territory, he had to give them presents and money to obtain the free passage of his army.

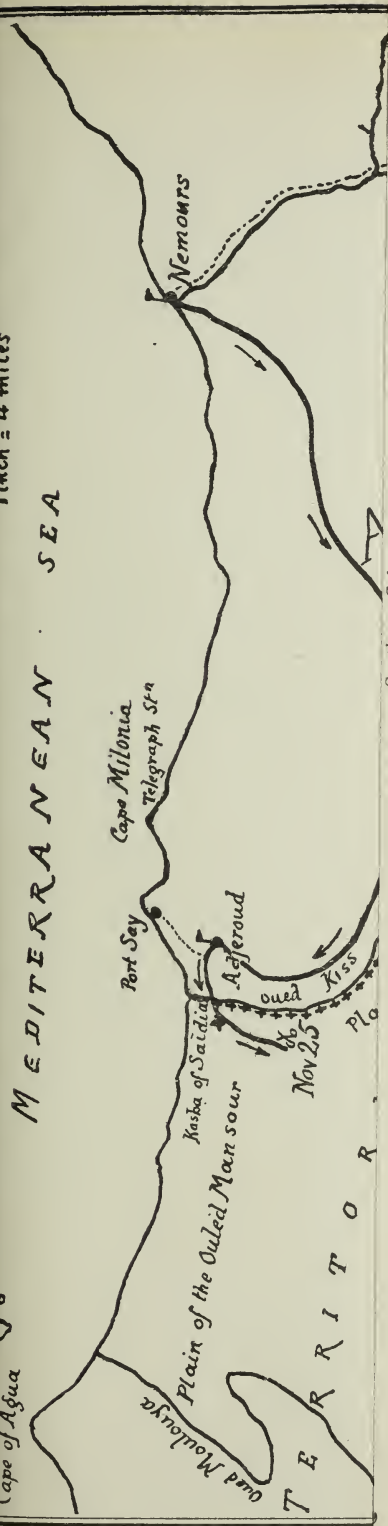
As for the military qualities of the Beni-Snassen, they are as all the Berbers, born fighters; they have a wonderful courage, due mostly to their fanatical religious ideas. On the battlefield they have rather repulsive customs, such as to cut the ears off the prisoners, or to rip open their own dead, dip their hands in the blood and then smear it all over their faces, after which they rush forward savagely with renewed ardor and yelling like mad beasts.

This is in a hand to hand fight; but they excel mostly in the guerrilla war, bringing by their stratagems the enemy into ambushes from which there is little chance to escape. The Berbers almost always attack first, by surprise, at daybreak, taking advantage of the confusion that follows their first shots. They

Cape of Agua
30°
Laffarines 1°

MEDITERRANEAN SEA

1 inch = 4 miles



XX Fights against the Beni-Shassen. — Concentration of French Columns.

LALLA-MARNIA: Headquarters (Gen. Lyantey) and base of supplies.

OUJDJA: Headquarters Southern Column.

MENACEB-KISS: Headquarters Eastern Column.

Reserve at Oudjda 1200 men.

- 1 Btn. Sharpshooters.
- 2 Cies Foreign Legion.
- 1 Squadron Fifth Chasseurs.
- 1/2 Squadron First Spahis.
- 1 Battery Artillery.

Reserve at Lalla Marnia 1400 men.

- 1 Btn. First Zouaves.
- 1 Btn. Sharpshooters.
- 2 Cies Foreign Legion.
- 2 Squadrons Sixth Regiment Chasseurs.
- 2 Batteries Mountain Artillery.

Southern Column.

- Infantry:
- 1 Btn. Zouaves.
 - 1 Btn. Sharpshooters (natives).
 - 2 Btns. Foreign Legion.
- Cavalry:
- 1 Squadron Second Regiment Chasseurs.
 - 1 Squadron First Regiment Chasseurs.
 - 1 Squadron First Regiment Spahis

- Artillery:
- 1/2 Squadron Second Regiment Spahis.
 - 2 Batteries Field-Artillery.
 - 3 Batteries Mountain Artillery.

Detachments Engineers Signal Corps, Hospital and Transport Corps.

Total:	
Infantry	2000
Cavalry	400
Artillery	500
Miscellaneous	300
	<hr/>
	3200 men

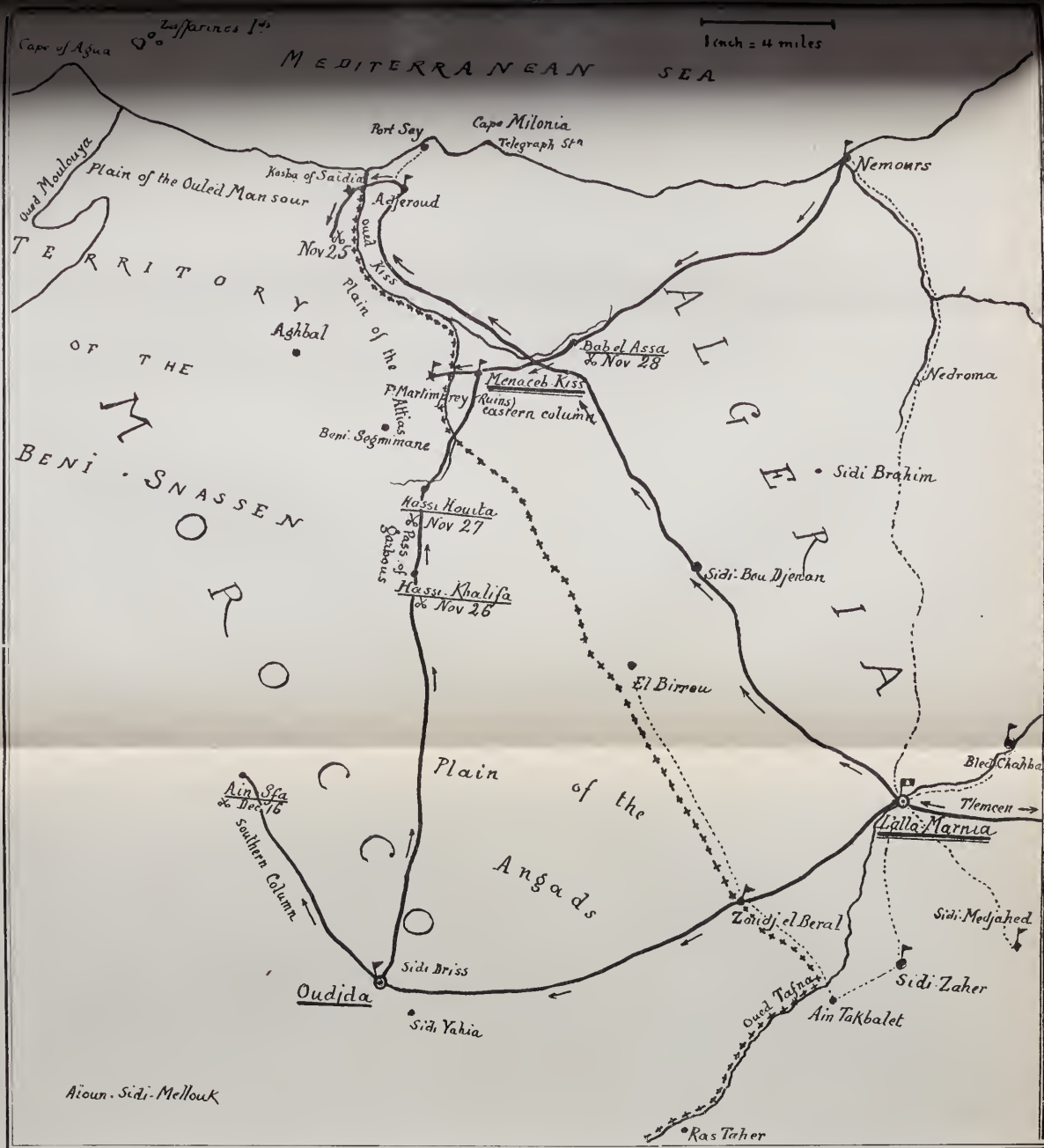
Eastern Column.

- Infantry:
- 3 Cies Zouaves.
 - 5 Cies Sharpshooters.
 - 1 Btn. Foreign Legion.
- Cavalry:
- 2 Squadrons Second Regiment Spahis.
 - 1 Squadron Second Regiment Chasseurs

- Artillery:
- 1 Battery Field-Artillery.
 - 2 Batteries Mountain Artillery.

Detachments Engineers Signal Corps, Hospital and Transport Corps.

Total:	
Infantry	1500
Cavalry	350
Artillery	350
Miscellaneous	200
	<hr/>
	2400 men



concentrate their forces, noiselessly, under cover of the natural obstacles afforded by the surrounding country: hills, trees, bushes, dried-up river-beds. In these maneuvers they are as cunning as our Indians used to be. But, however, there is no order or discipline among the tribesmen, and as Marshal Bugeaud said, "They are even easier to defeat when numerous, for there is less understanding between them and more confusion."

In the mountainous region of the Atlas, north of Oudjda, there are naturally few horsemen among the tribes; and their infantrymen, when they come down in the plains to fight, are at a disadvantage against charges of cavalry, since they dread to be surrounded and cut off from the mountains, which are their stronghold.

It is therefore likely that the French troops will have to conquer height after height, at the cost of many lives, before they can bring the Beni-Snassen into submission.

It will prove a strenuous task, as the guerrilla war, with its ambushes and perpetual skirmishes, unnerves the soldier who has to face an invisible enemy shooting at him from behind rocks and bushes and knowing every inch of the country. Should a French detachment be defeated and have to retreat, the Berbers will be following like wolves, attacking from all sides, murdering the stragglers, swarming around the rear-guard and the convoy of supplies.

In the recent fights the rapid firing of the seventy-five millimeter guns and of the mountain batteries seem to have thrown the Beni-Snassen into a state of panic, the melinite shells mowing them down like ninepins. But the best way to fight the Beni-Snassen successfully is to use coolness, discipline and unity of action, which are the very qualities they lack.

So far the present disturbance is local and confined to the Beni-Snassen tribe. The reason of their aggressiveness is, perhaps, to be found in the inactivity of General Drude and the expeditionary corps at Casablanca. This inactivity has led the ignorant tribesmen to believe that the French dare not attack. To the Arab, defensive tactics in war are a sign of weakness.

A more remote cause of the present outbreak is the occupation by the French of the Moroccan town of Oudjda, in March, 1907, as a punitive measure for the murder of Dr. Mauchamp, at Marrakesch. The action caused considerable irritation among the Beni-Snassen, and the ill-feeling on their part has been

manifested ever since. They sent emissaries to the Pretender and to Bou-Amama, an old enemy of the French, asking them for assistance to force the invaders out of Oudjda. Bou-Amama replied that if the French should attack him he would call on the Beni-Snassen for help. As for the Pretender, his answer is not known, although he was very bitter in hearing of the occupation of Oudjda, as he had always considered that town as one of his strongholds. But somehow, he has always tried to be on good terms with France, perhaps with the secret hope that this power may sooner or later endorse his candidacy to the throne of Morocco.

Such being the situation, we will briefly recall the incidents which have brought about the present state of affairs.

Early in October, reports came to Colonel Reibell, military governor of Oudjda, as to the restlessness of the Beni-Snassen; they were assembling in considerable groups along the border, at Aghbal and above the pass of Garbaus, which leads from the plain of Attias into the plain of Angad. M. Destailleurs, Consul of France at Oudjda, reported these facts to his government, asking that strong reconnoitering parties be sent to find out what the intentions of the tribesmen were.

A column therefore started from Oudjda under Colonel Henry, and on November 7th met a party of Beni-Snassen, who, without provocation, opened fire on the troops. The intervention of artillery soon forced the Moroccans to retreat, and their chiefs or "kaïds" came to the French commander, begging for the "aman" or pardon. A fine of \$1,000 was imposed upon the tribe, to be paid within two weeks.

On the date set for the payment, the Beni-Snassen failed to appear. Leniency was out of question, since it would be interpreted as a proof of weakness, not only by the Moroccans, but also by the Algerian-protected tribes. It was consequently decided to send a punitive expedition against the Beni-Snassen, and also to close the markets on the border where they transact business.

A column left Oudjda under Colonel Felineau; it included 500 infantry, half a squadron (sixty men) of the Second Spahis (native cavalry), and half a squadron of chasseurs, with also 120 irregular native cavalrymen (gaum), half a battery of field-artillery (seventy-five millimeter guns), and half a battery of mountain artillery.

On November 26th, at 5 A. M., this column met the Moroc-



SPAHS MARCHING TO ATTACK.



THE FOREIGN LEGION.

cans at Hacı-Khalifa; they were in position on the heights and opened the fire on the vanguard, killing one spahi. The French artillery took position, and with a few shells forced the enemy to retreat toward Beni-Segminane. The infantry occupied the heights there, and fired several volleys at the fleeing tribesmen, who lost thirty men.

During the day and the following night reinforcements came to both parties, and the next morning a force of 10,000 Moroccans made a wild attack on the French camp at Hacı-Houita, almost surrounding the infantry. But a charge of the cavalry, under Major Costet, cleared the field, thus enabling the artillery to fire some deadly volleys among the assailants, completing their defeat. The Beni-Snassen lost almost 1000 men, while the French had five killed and twelve wounded. Among the former was Lieutenant Raze, of the Second Spahis, shot twice while charging at the head of his men.

On receiving the news of this battle, the French Parliament voted by a majority of 300 in favor of sending a strong expedition to punish the Beni-Snassen. Full powers were given to General Bailloud, commanding the Nineteenth Corps at Algiers, and to General Lyantey, in command at Lalla-Marnia, on the frontier.

Two torpedo-boats were sent patrolling along the Moroccan coast to prevent the smuggling of arms and ammunition.

It was then learned that a Mohammedan priest, the Marabout Bouchich, was preaching the holy war against the French among the border tribes, and that his emissaries were stirring up the agitation, saying that since France had sent almost all her troops to Casablanca, it would be easy to annihilate the few soldiers she had mobilized on the frontier.

Following this appeal, a force of 2000 Beni-Snassen, on November 28th, marched across the border toward the spot called Bab-el-Assa, where a textile factory was recently opened. Their approach having been signaled, the workmen fled toward Nemours, while a troop of eighty irregular native cavalymen, under Lieutenant Maire-Sebille, were sent to stop the invaders; they occupied the heights surrounding the factory, firing at the Moroccans who, already in possession of the buildings, tried to set fire to them. Meanwhile a company of sharpshooters from Nemours, half a company from Odjeroud and twenty-five spahis from the latter post had arrived at Bab-el-Assa, and a desperate fight began, which lasted three hours. After having used up all



RETURNING TO CAMP AFTER THE BATTLE.



BRINGING IN CAPTURED ANIMALS.

their ammunition, the Moroccans retired, leaving eighty dead on the field. On the French side, there were eight killed, including Lieutenant de Saint-Hilaire, and fifteen wounded. Two other desperate attacks were made by the Moroccans on the following day, but they were again forced to retreat with heavy losses, and they recrossed the "oued" (river) Kiss, which forms the boundary line, setting fire on their way to several villages, after which they concentrated at Aghbal, where two Algerian-protected tribes followed them.

These attacks showed that the situation was more serious than at first thought to be. Reinforcements were hurriedly despatched to Oudjda, Menaceb Kiss and Marnia.

It was decided to send against the Beni-Snassen two strong columns, one from the east, with Menaceb Kiss as the base of supplies, the other from the south, from Oudjda.

The native troops (spahis, sharpshooters and goum) and the Foreign Legion form the nucleus of these columns, as they are composed of men who have been an average of five or six years in the service, and have taken part in previous colonial expeditions. Detachments have been rushed to the frontier from various parts of Algeria, and at the date of writing (December 21st), there is an agglomeration of 8000 men, under General Lyantey, ready to begin the operations. One of the first moves has been to attack and destroy the camp of Marabout Bouchich, one of the instigators of the outbreak. At the same time the Moroccan Governor of Oudjda was imprisoned for arousing, by an edict, the population against the French.

On December 14th the ruins of the old Fort Martimprey, abandoned in 1859, were occupied by French troops under the fire of a force of Moroccans from Aghbal, who tried to check the movement.

It has been reported that the Beni-Snassen, seeing the preparations begun against them, made a proposal of peace. But this can only be looked upon as a stratagem to gain time. It is doubtful that France will condescend to compromise, and the crisis must be met with, after years of half-way measures and diplomatic negotiations, which have proved of little or no avail.

How other European powers will consider the action of France and will allow her to take a foothold in Morocco is a matter which is beyond the limits of this study; but it is not unlikely that international complications may develop during or after the present campaign.



AMMUNITION TRAIN OF EIGHTH DIVISION MARCHING OVER ICE ON HUN RIVER.

CAVALRY OPERATIONS IN THE RUSSO-JAPANESE WAR.*

BY LIEUT.-COLONEL JOHN C. GRESHAM, FOURTEENTH CAVALRY.

OFFENSIVE OF GENERAL STACKELBERG AND BATTLE OF WAFANGU.



KUROPATKIN now made a vain effort to relieve Port Arthur, and entrusted the work to Stackelberg. As a preliminary the occupation of Yinkow, Newchwang and Kaitchiao by Samsonoff with the Ussuri cavalry was ordered.

Stackelberg had some 40,000 men with ninety-four guns, including the Second Brigade of the Siberian Cossack division, the Ussuri cavalry, one regiment of Primorski dragoons and a battery of the Transbaikal Cossacks.

When the Japanese learned through their spies of Stackelberg's march, great activity was shown by their First Army, and there were many affairs of advance posts, which, however, did not arrest the Russian advance.

BATTLE OF WAFANGU.

Several engagements followed between the Russian advance cavalry and the troops covering the Second Army to the north. The former consisted of two regiments with a Cossack battery and some detachments of scouts, which belonged to the independent cavalry brigade, and were supported by two groups of machine guns and two battalions. This force under Samsonoff about the first of June repulsed the first Japanese brigade of independent cavalry near Wafangu. In this fight the lance played an important part. After this success Samsonoff had to retire before two hostile battalions. A second fight occurred June 4th, when the heads of the Japanese advance-guards were driven back south of Wafangtien.

*Continued from January JOURNAL.

The Russians reached the neighborhood of Wafangu June 13th and were defeated by Oku in the battle of the 14th and 15th.

The Russian cavalry, which was on the extreme right of their lines, was at first under Samsonoff, but on the evening of the 14th or the next morning was placed under Simonoff, and again returned to Samsonoff near the end of the fight.

On June 15th General Guerngross, commanding the first division on the Russian left, vigorously attacked the hostile right with three regiments; the Japanese promptly refused their right to escape envelopment. But the brigade of the Russian Thirty-fifth Division, which should have supported the First Division by forming in echelon behind its left was too late, and when it appeared on the field about 11 A. M., the First Japanese Cavalry Brigade, intervening just at the right moment, threw upon the left flank of its attacking columns several dismounted squadrons that opened a very destructive fire. The Japanese right was thus enabled to contain the efforts of the Russians, and Oku pushing forward his artillery attacked their center, so that when his fourth division appeared about 1 P. M. victory was assured.

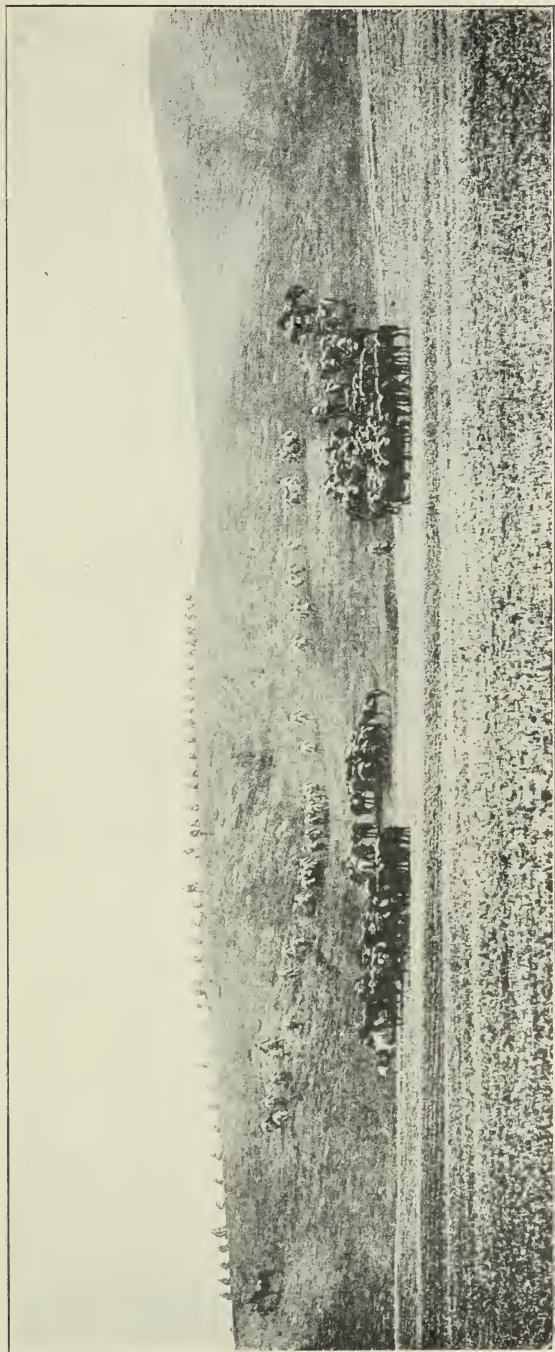
The Russian cavalry, though much superior in numbers to that of the enemy, took no part in the battle. The reason was that the ground on which it was condemned to act was wholly unfavorable. It should have been placed on the left so as to confront the First Japanese Cavalry Brigade, where it would also have found favorable terrain.

Nor did the Russian cavalry discover or report the turning movement executed by the left Japanese column, which, with the excellent work of the artillery above mentioned, ensured victory.

The Russians retired by forced marches covered by Samsonoff's cavalry.

OPERATIONS OF SAMSONOFF AFTER WAFANGU.

The operations of Samsonoff's cavalry after the Battle of Wafangu are of special interest. The great Mandarin Road, which starts from Port Arthur and runs to Mukden, 262 miles to the north, lies alongside the Manchurian railway, the only channel of communication of the Russian Army. The road passes by Kinchow, 35 miles from Port Arthur; Telissu, 85 miles; Kaiping, 137 miles; Tashichiao, 150 miles; Haichang, 167 miles; Liaoyang, 219 miles; Chapu, 244 miles; and ends at



A DETACHMENT OF THE MITAKE INDEPENDENT CAVALRY CORPS FIGHTING ON A HILL EAST OF HUANSHILING.

Mukden, 262 miles. The Battle of Kinchow, won by General Nogi on May 25, 1904, had cut off Port Arthur from the Army of Manchuria. Kuropatkin was desirous of leaving Port Arthur to its fate and concentrating his forces toward Tashichiao, the junction of the Mukden-Pekin and Mukden-Port Arthur railways, so as to maneuver between the Japanese Army under Oku, coming north along the railway, and the army of Kuroki, coming from Korea and marching upon Liaoyang. For some reason this project was abandoned, and it was decided to relieve Port Arthur. Kuropatkin was thus induced to push forward a considerable portion of his forces upon Wafangu. On June 14th and 15th they were there attacked and beaten by Oku, as stated above. After the engagement, the First Siberian Corps was hastily retired, first by two night marches upon Vanzelin, then upon Senuchen, and from thence in two columns upon Kaiping.

Samsonoff, then only forty-six years of age and noted for his physical strength and energy, had resumed touch on the morning of June 16th. His cavalry followed the rear-guard, one brigade strong, and covered itself at a distance of three and three-quarter miles from the main body by detached posts. On June 19th his forces were composed of six squadrons of dragoons, six sotnias of Siberian Cossacks, three sotnias of frontier guards, one commando (this is the term used in the report) of mounted scouts of the Thirteenth Regiment of Siberian Light Infantry, and the Third Battery of Transbaikial Cossacks. Each squadron consisted of from eighty to ninety troopers, the sotnias of from ninety to one hundred Cossacks.

On June 20th seven officers' patrols were sent forward; they reported a turning movement of three battalions and fourteen guns. Samsonoff immediately ordered the whole of his baggage-train to start, retaining only a few pack animals. Firing by the detached posts was continuous throughout the night. At 2.30 A. M. the men were again in the saddle, and on June 21st slowly fell back. The Japanese advanced in three columns, but it was impossible to ascertain their strength. Their cavalry was invariably protected by infantry, and on the march continued to cover themselves, as they did when halted, by a screen consisting of groups of cavalry and infantry combined, which the Russian patrols were unable to pierce. A few officer-scouts and some Chinese spies were their only sources of information.

On the 23d there was a further retirement but no engagement. A reconnoitering party, however, of about half a troop.

which had managed to slip unperceived along a narrow depression in the ground, opened fire on the horses of a squadron of dismounted Japanese cavalry, and succeeded in destroying half of them. On the 24th a further retirement. On the 25th a dozen patrols were sent forward.

On June 26th Prince Jaime de Bourbon brought an advice from the First Siberian Corps ordering an immediate reconnaissance upon Senuchen. At 3 A. M. three sotnias were accordingly started off. Three Japanese squadrons threw themselves in front of them, and then inclined to the right to entice them toward Senuchen, where, according to Chinese spies, the only source from which any intelligence at all was forthcoming, there were twelve Japanese squadrons of cavalry and 3000 infantry.

On the 27th Samsonoff received orders to take possession of Senuchen. Starting at 3 A. M., he attacked it on foot; but his artillery was powerless against the village, defended as it was by infantry. The attack failed and at 9 in the morning he began to retreat. On the 28th he doubled back upon Bao-vidjai, on the right bank of the Liao, thirteen miles south of Sakumen. The weather was very unfavorable, but in spite of the incessant fatigue the troops maintained an excellent *morale*. The 29th and 30th were quiet, for the Japanese made no further advance, but entrenched themselves. Infantry was at last sent, and the cavalry were able to rest. The Japanese did not resume the offensive until July 6th.

Thus it was that Samsonoff's cavalry spent twenty-three days in falling back thirty-seven and one-half miles, sometimes advancing, sometimes retiring, always hanging on to the enemy and watching his movements, but wholly unable to obtain sufficient information to justify him in undertaking any important operation. At times it found itself within only seventeen and one-half miles of the columns, and was often hampered by the fact that its line of advance-guards, and sometimes even of its cantonments, was fixed by the general commanding the First Siberian Corps.

It will thus be understood that whenever circumstances had happened to change during the interval between the transmission of intelligence and the receipt of subsequent orders, the situation became exceedingly complicated. Even when the infantry was close at hand Samsonoff was unable to give his horses rest, as he had orders to keep his cavalry always in advance of the infantry. Units had, at times, to be on duty

seventy-two hours without unsaddling, and throughout all these operations the cavalry were never able to act except as mounted infantry. Practically untrained in markmanship, and provided only with artillery too light for its work, they were never able to pierce the Japanese screens.

MARCH OF THE JAPANESE ARMIES ON LIAOYANG.

In the middle of June the Japanese active forces were distributed as follows:

On the right, First Army, Kuroki.	{ Second Division. Twelfth Division. Guard.	{	Around Fengwangcheng.
In the center, Fourth Army, Nodzu.	{ Sixth Division. Tenth Division. Second Brigade of Independent Cavalry. One brigade of in- dependent artillery.	{	Toward Siuyen
On the left, Second Army, Oku.	{ Third Division. Fourth Division. Fifth Division. First Brigade of In- dependent Cavalry. One brigade of inde- pendent artillery.	{	Around Wafangu.

The First, Ninth and Eleventh Divisions formed the Third Army under Nodzu at Port Arthur.

Each army had, as already mentioned, its reserve brigades and squadrons.

The First Army, facing toward the Motienling, confronted the corps of Keller, who had the Third, Fifth and Sixth Rifle Divisions and Rennenkampf's division of Cossacks.

In front of the Fourth Army, toward Tashichiao, was the corps of Zarubaieff, who had the Second and Third Reserve Divisions of Siberia, the Second Brigade of the Thirty-first Division and Mischenco's brigade of Cossacks.

Before the Second Army Stackelberg had fallen back to Kaiping. Before Wafangu his army had consisted of the First and Ninth Divisions of Rifles, the Second Brigade of the Thirty-fifth Division, the Second Brigade of the Eighth Division of Rifles, the Ninth Regiment of Infantry (Third Reserve Division of Siberia), the Ussuri Cavalry Brigade, the Second Brigade of

the Siberian Cossack Division (Second and Fifth Regiments), one regiment of Primorski Dragoons, and one Cossack battery Transbaikal, in all some 40,000 men with ninety-four guns.

Kuropatkin with the main body of his forces was, therefore, at Liaoyang, where the Tenth and Seventeenth Corps had finished their concentration.

Oyama assumed command of all Japanese forces at the beginning of July with Kodama as Chief of Staff.

OPERATIONS OF THE FIRST ARMY FROM JUNE 20TH TO JULY 31, 1904.

On June 23d the First Army marched north in three columns: the Twelfth Division on Saimatse; the Second on the Motienling by the main road; the Guard on Sumentse. The Russians made little resistance at first, but abandoned without a fight the Motienling and retired on Towan. Having established themselves securely in the pass, the Japanese suspended their offensive march to permit the Second and Fourth Armies to get abreast.

General Keller, realizing too late the importance of the pass, made an unsuccessful effort to retake it July 4th.

Kuropatkin, alarmed for his communications, changed the distribution of his covering troops and directed Rennenkampf to protect his left flank.

The Russian detachment, commanded by General Keller, and the fractions of General Rennenkampf's Cossack division, occupied the Fenshuiling and the Modulung Passes; while at the extreme left, the main body of Rennenkampf's division, reinforced by infantry, guarded the Anping-Saimatse road, the Anping-Mukden road and the Kiamtchang-Saimatse road.

Rennenkampf's Cossack division was on the Russian left wing. This division numbered twenty-four sotnias, but Rennenkampf had only six or eight of them directly under his orders; the others were scattered and employed on reconnaissances. Under such conditions this general could not undertake any serious operations. He had received strict orders not to advance in any case beyond Saimatse, which was only about thirty kilometers from General Keller's main position.

As for the reconnaissance service performed by the Cossacks in the mountainous regions occupied by General Keller, it was absolutely without results. Keller, on account of faulty information, entered into several useless and murderous combats, like

that of July 13th, in which the sotnias under Rennenkampf's orders took part, and in which the latter was seriously wounded, and like that of July 16th.

On July 17th, Keller made another strong effort to recover the pass, but failing at all points, retreated beyond the valley of the Tiensutien.

The various battles at Motienling, Chinkuling, Gebato Chaotao, Yangtseling, Yushuling and Penling, which followed, and which involved heavy losses to both sides, with the death of General Keller, resulted in the disastrous retreat of the Russians in the night of July 31st.

The First Army gained the positions previously held by the Russians, who fell back to the line, Tokayen-Anping.

In the combat at Yushuling, July 31st, a half-dozen Japanese managed to creep within 300 meters of a trench occupied by two companies of Russians and took them in flank with a vigorous fire. So great was the effect of the fire of this handful of men, that the Japanese infantry who made the frontal attack carried the trenches without a shot.

That the cavalry on neither side did anything on the field of battle during the many important engagements of July, 1904, was mainly due, no doubt, to the mountainous terrain.

At the end of July the First Army was distributed in two masses: the Twelfth Division was at Chaotao, the Guard and Second Division at Motienling, while a mixed detachment, including two battalions and a battery of machine guns, covered the right flank against Rennenkampf's Cossacks, and guarded the passage of the Taitseho' at Pensihu.

OPERATIONS OF THE SECOND AND FOURTH JAPANESE ARMIES FROM THE MIDDLE OF JUNE TO JULY 24, 1904.

In the middle of June the Second and Fourth Armies, as already said, were at Wafangu and Siuyen, respectively. From these points they marched on Haicheng, the former along the railroad, the latter by the passes of Taling and Fenshuiling.

The Russians had organized a great defensive line stretching from Yinkow to Simucheng and closing all roads leading from the southwest to Liaoyang. Tashichiao was at the center of this line, and was the provisional headquarters of Kuropatkin.

The defense of the western portion of this line was assigned to the First Siberian Corps under Stackelberg; that of the east-

ern to the Fourth Siberian Corps under Zarubaieff. On the extreme left, the Fifth Division of Rifles, which had hitherto kept up communication between Keller and Zarubaieff, occupied Simucheng.

Mischenco's Cossack Brigade covered the left of the Fourth Corps.

After a combat on June 21st at Senuchen with Stackelberg's rear-guard, and a slight affair July 8th at Kaitchiao, the Second Army captured the latter place. This army was delayed two weeks by heavy rains after the fight at Senuchen, so that it did not resume its march till July 6th.

The Fourth Army marched in two columns on Taling and Fenshuiling, which places were occupied on the 26th and 27th of June, respectively.

BATTLE OF TASHICHIAO.

During the preliminary movements on July 23d, Mischenco's cavalry in front of the Fourth Corps had discovered the advance of several small hostile columns, and after further information of his cavalry and scouts, the Russian commander estimated, on the evening of the 23d, that he had in his front three divisions. Hostile movements were also discovered in direction of Tanchy.

In the battle of the 24th Mischenco continued to cover the left of the Fourth Corps.

While the artillery combat was developing at the center of the First Siberian Corps, the cavalry posted on the Russian right deployed about 1 P. M. between the railroad and Suntsiangantseu, but when threatened by the hostile infantry, it retired on Sipotsiaotseu, and finally, at 7 P. M., withdrew to Datsiaopu.

About 1 P. M. Stackelberg issued orders for retreat, whereupon Zarubaieff determined to hold his positions. A little later Mischenco "consented" to support an attack planned by General Chileiko, while Major Kossovitch "positively refused his concurrence." These facts are significant of bad discipline at Tashichiao. This condition probably existed elsewhere and on other occasions.

Zarubaieff had been placed in general command of the First and Fourth Corps on the morning of July 24th.

The cavalry on neither side did anything on the field of Tashichiao, except as noted above.

MARCH OF THE SECOND AND FOURTH JAPANESE ARMIES TO THE
NORTH.

The Battle of Tashichiao opened to the Japanese the road from Yinkow and secured them a new and valuable base of supplies, connected by rail with China and Manchuria.

The Second and Fourth Armies pursued their march slowly, and after another sharp assault on the Russian front, that ran from Haicheng to Simucheng, on July 30th and 31st, the former place was occupied on August 3d, as was also Newchwang.

The Russians retired toward Liaoyang. The march of Kuroki was now endangering their left flank.

Until August 24th Oyama was wholly employed in preparing to continue his concentric march on Liaoyang.

Although the Russian cavalry was in great numerical superiority, it was not able to profit by the favorable field of action offered it by the Liaoho valley. The reconnaissance service was performed by detachments of mounted infantry.

On July 25th, the day after Tashichiao, the First Japanese Cavalry Brigade occupied Yinkow, where at the end of the month, the transports debarked troops and supplies. The numerous Russian cavalry did nothing to prevent the landing of these troops.

The principal Russian outposts were located as follows: on the southern front, at Anchantjuan; in the center, at Tangoyen; and on the eastern front at Anping behind the Lanho.

Kuropatkin's main forces were bivouacked, with the greatest portion of the cavalry, at and south of Liaoyang.

Kuropatkin wished to await the Japanese in his strongly entrenched positions, and then pass to the offensive.

Oyama did not resume his march against these positions until August 25th.

The Russian cavalry should have been able to profit by this long check of the hostile armies to carry on reconnaissances, or to undertake enterprises against their flanks and rear, or to annoy their reserves. It did nothing of the kind.

An inquiry into the reasons for this apparent inactivity of the Russian cavalry is important.

Maj.-Gen. Sir Edward Hutton, of the British Army, declares that "if the Russian cavalry effected little, it was because it was ill-equipped, ill-trained and badly led. If the Japanese

cavalry failed, it was from want of numbers, machine guns, horse-artillery and inaptitude of horsemen."

One advantage the Japanese seem to have enjoyed over the Russians was apparent freedom from tradition of past ages, and the use of common sense in every move in the game. They took good care not to expend the cavalry—never too numerous and with them few in number—for screening duty. This work was done by small bodies of their abundant, well-trained, swiftly-marching infantry accompanied by the smallest number of horsemen that could be got along with, while the mass of the



JAPANESE NON-COMMISSIONED OFFICERS SCOUTING IN A MILLET FIELD NORTHEAST OF FENGCH'IPAO (NORTH OF ANSHANTEN).

cavalry was husbanded with watchful thrift for fighting purposes. The modern rifle with its smokeless powder and immense range seems to confirm the wisdom of this plan and to make the duty of security and information under such conditions better suited to dismounted men. The Japanese always kept their reconnoitering cavalry in easy reach of their advanced parties of infantry, which could thus use it, as it were, like far-reaching field-glasses, and, having so used it, could protect it. For, as already said, the screening cavalry, when pressed, invariably retired behind the infantry.

Moreover, the Japanese cavalry never ventured to meet its adversary on horseback, but always depended on fire action dismounted.

This plan of action seems to have disconcerted the Russians not a little.

Again, except a single brigade, the whole mounted force of Russia in this war was Cossack, not regular cavalry. There were only two regular regiments, the Fifty-first Chernigoff and the Fifty-second Niejinsk, or twelve out of 207 squadrons first and last. The Cossacks, whose reputation in 1812 and 1814 gave them a renown no longer deserved, were in large part of



COSSACK HORSE EQUIPMENT.

the second and even the third category and had received little or no military training.

It should also be remembered that the three cavalry leaders of greatest ability on the Russian side, Mischenco, Samsonoff and Rennenkampf, were all badly wounded in this war, and that the value of cavalry above all arms is directly proportional to the value of its leaders.

It must not be forgotten, also, that the cavalry in this war had often to operate in most unfavorable terrain. It found rocks, torrents, mountains that could not be crossed after rain. Fields and plains were often quagmires, and the few roads impassable. The fortified positions, where the opposing armies lay for months, also did much to reduce activity of the cavalry. Japanese ambushes and the strong meshes of their net of mixed

parties compelled reconnoitering patrols to dismount, columns of route had to send their scouts out on foot, the work was slow, tedious, exhausting, and little or no information of value could be got.

As a rule, the troopers managed to live on the country, but the horses suffered much for food.

The horse-artillery attached to the cavalry met great difficulties and had often to be dragged by hand or left behind.

And worst of all, the Russian generals lost faith in their cavalry, and when they sometimes managed to bring vital news they were not believed.

The strength of the Russian cavalry was recklessly expended also by excessive detachment of sundry sorts.

Ambushed day and night, going whole weeks without being relieved, always patrolling, always driven back or captured by the shrewd hostile infantry, their nerves and their horses worn out, the energy of the Russian cavalry had at the period now under consideration been reduced to the lowest ebb.

But it is time to return to the narrative.

BATTLE OF LIAOYANG.

On August 3, 1904, the concentration of the First, Second and Fourth Japanese Armies was complete. They formed a great semicircle with a radius of some forty-five kilometers south of Liaoyang.

All Russian forces in Manchuria were also assembled around the same place.

Besides large reinforcements in other arms, the Russians had received a division of Cossacks of Siberia, a division of Cossacks of Orenburg, a brigade of the Caucasus and a brigade of the Ural.

Though the Japanese staff kept secret the number of reinforcements sent to their armies, there is now no doubt that all corps that had fought were filled up, and that several brigades of reserves joined the army and took part in the battle.

Kuropatkin had, therefore, on August 23d, six army corps of 25,000 effectives each.

His independent cavalry embraced

One Cossack division of Siberia of four regiments and two horse batteries each, under Samsonoff.

One Cossack division of the Transbaikal of four regiments and two horse batteries each, under Rennenkampf.

One Cossack division of Orenburg of four regiments and two horse batteries each, under Grekoff.

One Cossack brigade of the Transbaikai of two regiments and one horse battery, under Mischenco.

One brigade of the Caucasus of two regiments under Prince Orbeliani.

The assignment of the following was doubtful or unknown :

One Cossack brigade of the Ural.

One regiment of dragoons of the Maritime Province.

One Cossack regiment (third category) of the Transbaikai (probably assigned to the Tenth Corps).

One Cossack regiment of Ussuri (probably assigned to the First Siberian Corps).

One and one-half Cossack regiments of the Amur (probably assigned to the Second Siberian Corps).

Besides technical troops, Kuropatkin had :

172 battalions (130,000 men).

147 squadrons (14,000 sabers).

520 guns and twenty-four machine guns.

There were also at Mukden in reserve 30,000 men and ninety-six guns.

Oyama had on August 23d in the First, Second and Fourth Armies about 120,000 rifles, 5000 sabers and 550 to 600 guns, besides several reserve brigades, which made his numbers virtually equal to those of Kuropatkin in all but cavalry.

The plain of Liaoyang is traversed by a number of roads, of which the principal are the Mandarin Road, the railroad from Port Arthur and the road from Fengwangcheng. It is planted largely in millet and has many villages capable of defense. Liaoyang is a city of 70,000 people and is surrounded by a Chinese wall.

Mixed detachments were pushed to the front to keep contact with the Japanese, and the cavalry covered both flanks of the main Russian position, which stretched in a great arc from Mayetun near the railway to Sakutun on the Taitseho. Except on the flanks, which could be easily turned, the position was generally strong.

The Battle of Liaoyang naturally divides itself into four phases or periods :

1. The carrying by assault of the advanced Russian lines from August 24th to 29th.

2. Attack of the main position on August 30th and 31st.

3. The enveloping attack by the First Japanese Army and the attack on the bridge-head of Liaoyang from September 1st to 3d.

4. The Russian retreat.

The greater part of the Cossacks of Samsonoff and Grekoff and the entire brigade of the Caucasus, all under command of Samsonoff, covered the left flank of the army.

Rennenkampf's Cossack division covered the right flank.

Mischenco's Cossack brigade was charged with the vital and difficult task of preserving communication between the two principal masses of the Russian Army, which on August 24th were separated by a gap of some twenty kilometers.

These masses were composed and placed as follows:

On both sides of the railroad near Anshantien, and extending east as far as Tsilintseu, were the First, Fourth and Second Siberian Corps under Kuropatkin himself; while to the east, toward Tunsipu and Kofintseu, was the Third Siberian Corps, whose line was prolonged to the left toward Anping by the Tenth Corps. These corps were under Bilderling.

The Seventeenth Corps was held in reserve behind the Third and Tenth near Siaolintseu and Tatsipu.

On the evening of August 27th the Japanese troops, whose mission was to turn the Russian right, reached the Shaho and bivouacked in its valley. Samsonoff's Cossack division, which was on this wing, was too weak (nineteen sotnias and six cannon). It did inform the commanding general in opportune time of the approach of the Japanese turning columns, but could not prevent their crossing the Shaho. On the 29th Samsonoff's division considerably retarded the hostile turning movement and reported it to the Russian staff.

It seems that a considerable body of cavalry, supplied with sufficient artillery and machine guns, should have been able to support the right wing. But the Ussuri Cossack Brigade, commanded by General Grekoff (fourteen sotnias and six pieces), was on the north bank of the Taitseho, and could not join Samsonoff's division in its struggle.

During the day of August 29th the Japanese made their last dispositions for the great struggle and began to envelop the Russian left at the same time that they were maneuvering to turn the right. The Russian cavalry noticed none of these movements.

On August 30th the Japanese infantry made a general attack

along the entire front. This attack was prepared by artillery. The Japanese were repulsed, and the Russian center even took the offensive. The Russian right wing, which was vigorously attacked by the hostile turning column, was able to resist only when strongly reinforced from the general reserve. The Russian cavalry did not intervene.

During these events a considerable part of the First Japanese Army had crossed the Taitseho at Sakan and at Kvantun. The Transbaikals (Rennenkampf's, who was in an ambulance on account of wounds), which were about fifteen kilometers from the crossing, did nothing to prevent it, and reported it only when the hostile columns were within seven kilometers of the Russian reserves. The first information of the crossing of the Taitseho by Kuroki at Sakan and Kvantun reached headquarters only on the 31st.

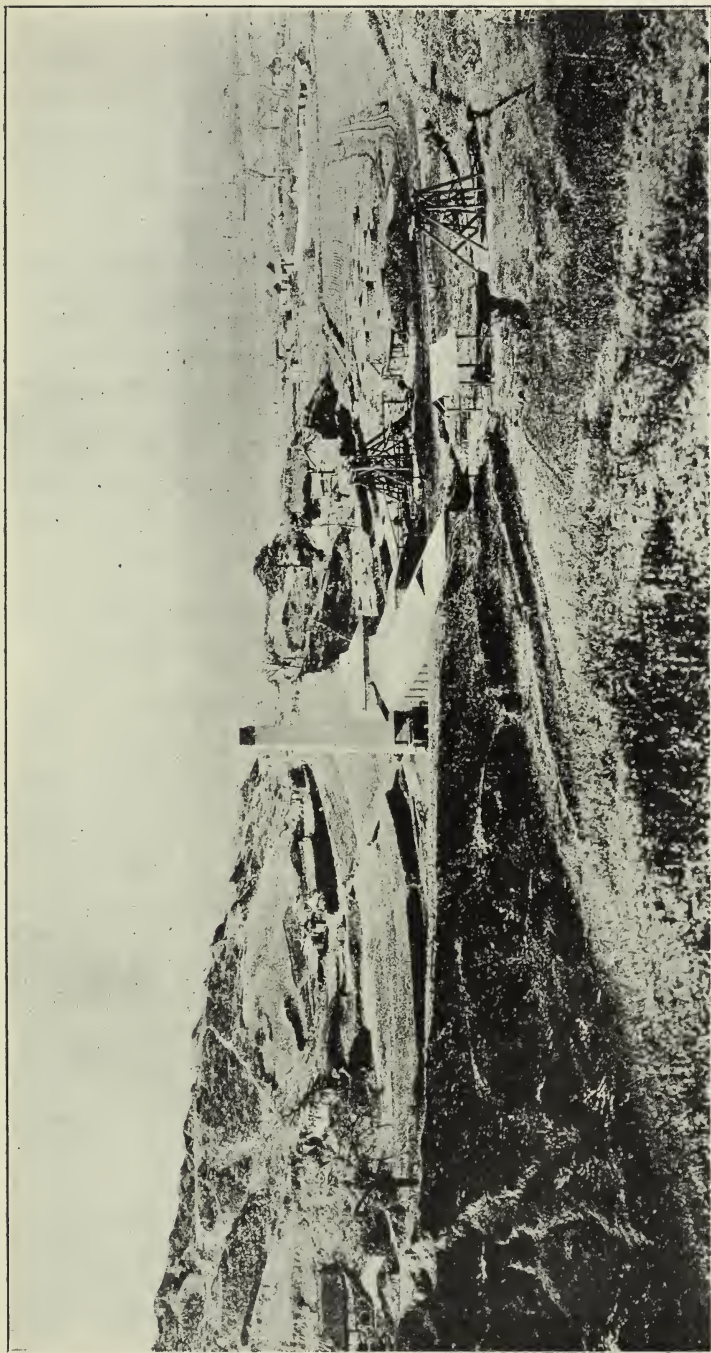
On the 31st the tactical situation was nearly like that of the 30th, and the Russian cavalry still remained inactive.

Kuropatkin, on receiving the information mentioned above, realizing the danger that menaced his left and his line of retreat on Mukden, gave orders on the night of August 31st-September 1st to those troops which were, till then, successfully holding their own, to withdraw to the permanent works of the Liao-yang defenses.

These works had to be protected in a passive manner by the Second and Fourth Siberian Corps against the Second and Third Japanese Armies, while the units available from the First and Third Siberian Corps, as well as those from the Tenth and Fifth Siberian Corps, which had just arrived on the field, had to cross the Taitseho upstream and hold themselves in readiness, under Kuropatkin's direction, to take the offensive against Kuroki. The Seventeenth Corps was charged with covering these concerted movements with the Transbaikals Cossack Division.

General Orloff advanced toward the Yentai mines with an infantry division to outflank Kuroki's extreme right and compel him to halt.

On September 1st the Russians evacuated the above-mentioned positions without molestation. There was no heavy fighting except by the rear-guard of the right wing around Mayetun. Again the Russian cavalry, though in a level country, did nothing to facilitate the retreat of the infantry withdrawn under Kuropatkin's orders. The Russians, to excuse the inac-



THE COLLIERY AT VENT'AL.

tion of their cavalry at this time, said that it was due to the kaolin which covered the plain.

During these events Kuroki advanced in a menacing manner on the north bank of the Taitseho, repulsed the Seventeenth Corps, and occupied the heights of the Yentai mines, echeloning his reserves behind the extreme right.

On September 2d the Russians again attempted to repulse Kuroki, and it was then that Orloff's division was dispersed, as mentioned below, causing Kuropatkin's plans to miscarry.

The defeat of Orloff's division determined General Kuropatkin to order the retreat on Mukden on September 2d.

Mischenco's Cossack brigade was established in a very good position and maintained communication between the parts of the Russian Army and for two days prevented the Japanese from breaking through. This brigade withdrew only when it received the formal order to do so.

Rennenkampf's division, which was in position north of the Yentai mines, checked the Japanese with the fire of its artillery and cavalry, which had dismounted, and thus permitted the Russian right wing to withdraw to the north.

Lord Brooke, in "An Eye-Witness in Manchuria," tells the following significant story:

Meanwhile day had broken (August 27, 1904). The whole Japanese Army seemed in motion in direction of Haicheng. Beneath us were two or three Cossack outposts, and beyond these outposts I espied a body of cavalymen advancing cautiously in our direction. I remarked to the Russian officers near me that these men were Japanese. They laughed and said they were Russians. The horsemen were lost to sight for a while in the millet, from which they presently emerged close to a Cossack post. The Cossacks did not detect their presence, but it was otherwise with the Japanese, for such they were now seen to be. Dismounting and leaving their horses in a village, they went forward, ascertained what they wanted, went back, mounted and rode away. It was a little drama played under our eyes and not without its lesson on the fortunes of war generally. I say "beneath our eyes," but the Russian officers had their excuse—they were for most part either without glasses or provided with very indifferent ones. They were always glad when opportunity offered to borrow the telescope of a correspondent or attaché.

Lord Brooke witnessed this scene from commanding and distant heights.

On September 2d, in the third period of the battle, Samsonoff did good work in protecting Orloff's left flank near the coal mines of Yentai.

On September 1st General Orloff had taken position south

of the mines and distributed his troops as follows: In the first line, at the center, was a part of the artillery supported on the right by a battalion of the 216th Regiment and on the left by the three companies of the Srietinsk Regiment and a company of the Tenth; in reserve were the Eleventh, 215th and 216th Regiments and part of the artillery; in rear of the flanks were: on the right, the Niejinsk Dragoon Regiment and the Cossack Regiment of Terek-Kuban; on the left, the cavalry of Samsonoff.

The Twelfth Japanese Division, in marching north to turn the Russian left, encountered Orloff's people September 2d while they were en route to cover the left of the Seventeenth Corps, and in the desperate struggle that followed Orloff was wounded and his command, riddled by the hostile fire, was thrown into total disorder, while Samsonoff, with the greatest difficulty, held back the Twelfth Division by the dismantled action of his cavalry. As a result of this, when the Russian Army soon after began its general retreat to the north, Orloff's people, assisted by Samsonoff's cavalry, were in shape to cover its retreat, which was made in perfect order without loss of a gun.

RETREAT ON MUKDEN.

Kuropatkin ordered Liaoyang to be abandoned on the night of September 3d-4th. After those supplies which could not be carried away had been burned, the rear-guard left the town at 9 A. M. without molestation from the Japanese. It is probable that if the masses of cavalry on the right had acted vigorously, the victory of the Japanese might have been turned into defeat.

On the evening of September 7th the main body of the Russian Army was concentrated south of Mukden. As for the rear-guard, it remained south of the Hunho and occupied one of the banks of the Shaho.

From September 2d to October 5th, the date upon which the Russian Army took the offensive, there was an almost complete calm which the two sides took advantage of to reorganize themselves. This calm was broken only by a reconnaissance in force carried out by Samsonoff's and Rennenkampf's Cossack divisions. This reconnaissance was met near Bianapusa by strong Japanese forces and had to withdraw to the north.

During this month the Russian cavalry made no attempt to act against the rear of the Japanese Armies and destroy their lines of communication.

The First European Corps had arrived and the Sixth Siberian Corps had begun to arrive at Mukden; and on September 24th the Emperor directed the formation of a Second Army under Genral Grippenberg.

The Japanese halted a few kilometers north of Liaoyang, pushing advance posts to the line Bianapust-Yentai. They employed the whole of September in fortifying and bringing up reinforcements, of which more than 30,000 joined the active army.

SITUATION OF THE RUSSIAN ARMY, OCTOBER 2, 1904.

On October 2d the Russian Army consisted of nine army corps and six large units of cavalry, and numbered about 200,000 men, of whom 13,000 were horsemen. It had also some 900 guns.

The six large units of cavalry were as follows:

1. The Transbaikal Cossack division under General Rennenkampf, consisting of two regiments which had formerly been brigaded under Grekoff, and two regiments brigaded under Liubavine.
2. The Orenburg Cossack division under General Grekoff, consisting of two regiments brigaded under Erdmann and two under Tolmatcheff.
3. The Siberian Cossack division under General Samsonoff, consisting of two regiments brigaded under Baumgarten and two under Tumanoff.

Each of these divisions had two horse batteries.

4. The Transbaikal Cossack brigade under Mischenco, consisting of two regiments with one horse battery.
5. The cavalry brigade of the Caucasus under Prince Orbeliani, consisting of two regiments.
6. The Cossack brigade of the Ural, consisting of two regiments.

In addition to the above, the several army corps had cavalry assigned as follows:

First Siberian Corps: Primorski Dragoons and four sotnias of frontier guards.

Second Siberian Corps: one Cossack regiment of the Amur.

Third Siberian Corps: one Cossack regiment of Argun and the First Cossack Regiment of Ussuri.

Fourth Siberian Corps: Third, Sixth and Ninth Cossack Regiments of Siberia.

Sixth Siberian Corps: one Cossack regiment of Orenburg.

First European Corps: one-half Cossack regiment of Ussuri.

Tenth European Corps: one Cossack regiment of Orenburg.

Seventeenth European Corps: Second Brigade of Independent Cavalry.

The army was assembled around Mukden on the right bank of the Hunho between Fulin and Fushun, and covered by its cavalry as follows:

In front, on the upper Chiliho as far as its junction with the Shaho, the Cossack brigades of the Transbaikal and the Caucasus under Mischenco.

On the right flank, between the Hunho and the Laioho, Grekoff's division.

On the left flank, toward the upper Shaho, Samsonoff's division.

On the extreme left, on the road from Fushun to the pass of Taling, was operating Rennenkampf's division.

Thus 10,000 horsemen formed in front of the Russian Army a screen that could not be passed by the Japanese reconnoitering cavalry. The Japanese spies, however, got all information needed by Oyama, who was thus kept accurately informed as to the designs and movements of his adversary, and did not even expect his cavalry to do such work. Intelligence of this kind was obtained by a system of espionage organized years before in times of peace.

One anecdote will illustrate the efficiency of the Japanese spy system. At the end of February, 1905, Kuropatkin's headquarters were at Shushanpu, six and one-quarter miles to the south of Mukden, near the broad-gauge military railway constructed to connect Mukden with the Army of the East at Fushun. The general-in-chief had determined to take the offensive on February 25th. The preparation of the orders took place in the strictest privacy. On February 25th it was discovered that these orders were known to a secret spy agency run by a Japanese senior officer who had long previously been resident in Mukden. Counter-orders were given on the spot.

The area of exploration was thoroughly searched by spies beforehand. A Russian report, dating between July 21st and August 3d, 1904, thus shows how:

In advance of the troops some Chinese are always sent forward to search the ground, which they do with the greatest care, as the slightest negligence exposes them to instant death. For this purpose, in the Chinese villages the Japanese take away the father and sons from their families. The fathers are kept as hostages, while the sons are sent out as spies, two brothers being usually sent in the same direction but at different times, so that on their return the information of one can be checked by that of the other. In the event of disagreement the father is put to death. Throughout the enemy's zone of approach the Japanese spread a veritable network of native spies. Their mission is to

follow every Russian movement. Death is not merely the punishment for treachery but also of inaccurate information. Behind the spies come small patrols of cavalry supported by infantry; thus, for every three or four mounted men there are always four or five infantry soldiers. When the horsemen break into a trot, their shadows, the men on foot, run behind them. After the patrols come the leading detachments, and then the main body in company column with wide intervals between. As a rule, the cavalry does not march in advance of the infantry, but in rear of the leading detachment. It serves to cover the advance batteries, as well as those on the flanks. When a detachment is choosing a position, as soon as the spies have searched the ground and ascertained that no Russians are to be seen in the neighborhood, the advance sections deploy into extended order and move on to the site selected, where they lie down prepared for action. Then, and not till then, the main body arrives and at once begin to dig trenches. This work is carried on with the utmost rapidity. At the same time, the distances of any remarkable objects ahead as well as on the flanks are accurately measured, especially those points of vantage where the enemy might be able to establish a line of fire. The entire landscape in front is quickly sketched upon boards previously marked out into squares. All the salient features are indicated, with instructions noted at the side, giving the number of the square with the distance and the elevation to be employed in firing. These boards, which are supported on legs, are subsequently placed in the trenches, and the officers explain to all the men which mark on the board corresponds with the real object in the landscape. The sappers at once begin to dig communication trenches to the rear, lay out roads, construct foot-bridges, set up telephones, and install signal stations on the heights. They use heliographs and flags, fire, smoke and lanterns. Specially trained Chinamen are employed as signalers. They are well paid and entrusted with revolvers. On the routes which the enemy must follow ambuscades are laid. They are composed of two separate parts. The first, called "the gate," consists of sharpshooters, whose duty it is to allow the enemy to pass unmolested, without giving any sign of their existence. The second comprises the bulk of the troop. When the enemy's reconnaissance arrives near the position, it is signaled and received with a rapid fire, and when it falls back is attacked in turn by "the gate."

Oyama believed in the principle that his cavalry should be carefully husbanded so that on the field of battle he might have a force which he could move swiftly to any special point where its shock or fire action would be most effective. We say "in principle," because the Japanese cavalry, owing to bad mounts and poor training, did not as yet venture on any but fire action. But in their next war this principle will doubtless be applied also in shock tactics. For in Japan all energies are bent toward increasing their cavalry in time of peace, especially toward the formation of cavalry divisions, and the necessity is emphasized for obtaining a good breed of cavalry horses, which were so sadly lacked in this war, through the creation of remount depots. It may be well to invite attention to the fact that in the German

Army constant efforts are made gradually to increase the cavalry.

The Japanese has for ages been a pedestrian, not a horseman. His country, covered with rugged mountains, could not produce a good breed of horses; freight has always been carried by coasting vessels or by human beasts of burden. The highest classes traveled in sedan chairs until the era of the railroad. The Japanese horses are mere ponies, raw-boned, short-necked and refractory. As early as the war against China, 1894-1895, the Japanese cavalry was found to possess little ability in comparison with the other arms. Since 1895 the government has recognized this and has made strenuous efforts to increase the efficiency of that arm. What the Japanese attained in 1904 and 1905, even if it did not meet the expectation of military critics, must nevertheless command attention. Through the restless energy which distinguishes Japanese methods, and through the devotion of the troops themselves, as early as the Chinese campaign the cavalry rode their awkward mounts with recklessness over the most difficult terrain—through rice-fields, over ditches and dikes—an accomplishment which is only explainable by the special characteristics of a warlike people. To quote eye witnesses, an English officer, speaking of the Japanese cavalry in the fight at Peitsang, says:

The grandest spectacle was the splendid attack made by the Fifth Japanese Cavalry Regiment against a Chinese battery which poured an effective fire on the advance troops of the allies on a narrow dike. Upon receipt of the order for the attack the Japanese regimental commander led his three squadrons through the tall millet, over ditches and hedges at top speed, straight toward the Chinese. Before the latter recovered from their astonishment the Japanese were in their midst, cut down the gun crews and took the pieces. The entire enterprise looked like a parade attack, and delighted the onlookers.

In 1903, or just before the outbreak of the late war, Capt. C. D. Rhodes, U.S.A., attended the Japanese maneuvers and expresses his observations as follows:

The horses are small, weak and of irregular sizes. Besides the Japanese home product, Australian horses were observed, which were purchased by the Japanese from the Germans at the close of the Chinese expedition. The men had, generally speaking, a good seat. All movements were executed at a trot, even in cases where, according to our idea, the gallop should have been employed. The squadrons took hurdles of medium height. No riders were unseated, but it was nevertheless evident that many of them only retained their seats with difficulty. The Japanese is, generally speaking, not a natural horseman.

But to return to the narrative :

SITUATION OF THE JAPANESE ARMY, OCTOBER 2, 1904.

The three armies; which had received their reinforcements, lay on the south bank of the Chiliho, and, like the Russians, were protected by extensive fortifications.

The composition and positions of the three armies were as follows :

The First Army, Kuroki.	{ Guard. Second Division. Twelfth Division. One brigade inde- pendent cavalry. One brigade inde- pendent artillery. Five reserve bri- gades.	{ Between the Yentai mines and Pensihu, guarding the passes that give passage from the north and east through Pensihu, and also holding Bianapusa.
The Fourth Ar- my, Nodzu.	{ Fifth Division. Tenth Division. One reserve brigade.	{ South of the Yentai coal mines.
The Second Army, Oku.	{ Third Division. Fourth Division. Sixth Division. One brigade inde- pendent cavalry. One brigade inde- pendent artillery. Three reserve bri- gades.	{ Astride the Mandarin Road south of Yentai, and extending east to the Hunho.

Each army had a special line of communication as follows :

The First Army: By Fengwangcheng-Anju-Seoul-Chemulpo.

The Fourth Army: By Kaitchiao-Talienwan.

The Second Army: By Haicheng-Yinkow.

The Japanese had a total of 160,000 men, including 4500 cavalry and 600 guns.

Their numerical inferiority was therefore considerable, but their units were well filled up and had all the advantage of cohesion, while the Russian corps were not only lacking in numbers, but as they had many green, unseasoned men, were also much wanting in cohesion.

Moreover, the Russian officer and soldier were now obsessed by a strong conviction that every conflict must of necessity end in

retreat and their morale was at a low ebb. There seems to be no doubt that the Russians stood faint-hearted and dismayed before their enemies.

BATTLE OF THE SHAHO, OCTOBER 9-18, 1904.

Kuropatkin's orders of October 4th divided his army in three groups as follows:

1. The western group, consisting of the Tenth and Seventeenth Corps and parts of the Fifth Siberian Corps was placed under Bilderling, commander of the Seventeenth Corps.

2. The eastern group, consisting of the First and Third Siberian Corps, parts of the Second, Fourth and Fifth Siberian Corps and of Rennenkampf's and Samsonoff's Cossack divisions, was placed under Stackelberg, commander of the First Siberian Corps.

3. The general reserve, consisting of the First European Corps, the Sixth Siberian Corps and parts of the Second and Fourth Siberian Corps, was kept at the disposal of Kuropatkin himself.

For groups in the first line, the general directions were: for the western one, Mukden-Liaoyang; for the eastern one, Fushun-Pensihu.

Communication between them was maintained, in a manner somewhat precarious, by a detachment made up of a brigade of the Thirty-first Division and the two Cossack brigades of Mishchenko. This detachment was placed under command of General Mau and directed upon the Yentai mines.

General Grekoff continued to cover the right flank of the army.

The hostile lines, whose general positions had been determined, and which had been kept in touch by the Russian cavalry, extended from Tchanchan on the Hunho to Bianapusa, passing north of the Yentai hills and bending southeast to the upper Taitseho above Pensihu.

The exact Japanese dispositions were not known, but subsequent events showed that the bulk of the Second and Fourth Armies was astride the Mandarin Road and the railroad on a level with Yentai, and that Kuroki's main forces were about Pensihu and west of this place.

The battle may be divided into three principal phases or periods:

1. The offensive march of the Russians from the 4th to the 9th of October, 1904.

2. Attack on the Japanese positions and the hostile counter-attack followed by the Russian retreat on the Shaho, from October 10th to 13th.

3. Attack of the Japanese on the Shaho positions, from the 14th to the 18th of October.

In the first period, Stackelberg, on the east, advanced in three columns: the right and center ones marched on Bianapusa and Uiniunine, respectively, and were preceded by one general advance-guard consisting of Samsonoff's cavalry supported by the mounted scouts of the Thirteenth Regiment.

The left column, under Rennenkampf, marched on Siantsiatseu, and, besides his Cossack division, included a strong force of infantry under General Eck. Rennenkampf's total force amounted to sixteen battalions, twenty-four squadrons and eight batteries.

On October 8th Samsonoff's Cossacks fell upon the hostile advance posts south of Bianapusa, and then turning southeast, marched by Tchuigapusa on Jogu and Uiniunine. Just as they reached these places Rennenkampf's infantry debouching from Siantsiatseu in two columns arrived there also. Samsonoff now ascends by the pass of Kuanling and again falls on the hostile advance posts toward Sianchantseu just as the advance guard of the First Siberian Corps attacks them on the north.

Thinking it useless to employ his cavalry against fortified positions, Stackelberg had it relieved by an infantry brigade.

On October 9th, when the Third Siberian Corps reached Kao-taitseu, Rennenkampf supported it with his infantry, while he sent Liubavine's cavalry brigade across the Taitseho to threaten the defenders of Pensihu on the south.

In the second period of the battle, when the eastern group gained contact with the hostile advance posts, Stackelberg withdrew the advance cavalry and on October 10th placed Samsonoff at the disposal of the commander of the Third Corps; charged with defending the ford of Uiniunine, Samsonoff placed himself under orders of Rennenkampf, who entrusted to him the command of all the cavalry.

On October 11th, leaving three sotnias, four companies of infantry and two mountain-guns to guard the ford, Samsonoff crossed the Taitseho with his main body and joined Liubavine,

whose line he prolonged to the left by the Fourth Cossack Regiment and to the right by the scouts of the Thirteenth Regiment.

Alarmed by the increase of hostile forces on this side, the Japanese hastened to reinforce the few companies they had on the south bank.

The Russians tried to oppose this movement and fired on the hostile reinforcements as they were crossing the bridge they had thrown over the Taitseho, but did nothing whatever to capture or to destroy the bridge itself. Had they done this, they would have had a great advantage, for, safe against any attack of hostile infantry, they could have used their artillery to take in reverse the Japanese lines of defense established east of Pensihu.

They were on the enemy's flank and rear, could plainly see all his movements, dispositions, trenches and could almost distinguish the features of individuals, yet the Russian cavalry stood stolidly on the defensive and did nothing.

The Japanese, however, took prompt measures to rid themselves of an adversary who was in such excellent position to do harm, and were maneuvering while he stood inactive.

And on the morning of October 12th, when the Russian batteries attempted to open fire, they were answered by hostile batteries on the right bank. At the same time large masses of Japanese were discovered to the south and proved to be the cavalry of Prince Kanin and the troops of the Twelfth Division.

The Russian cavalry hurriedly withdrew to the west and crossed to the right bank of the Taitseho.

A few hours later, Prince Kanin, putting his machine guns in battery between Kokahochi and Saikacho, opened a sudden and wholly unexpected fire on an infantry brigade placed in reserve by Rennenkampf on the right bank of the Taitseho and inflicted such losses that they soon disappeared from sight, leaving 600 dead on the field and drawing along in their hasty departure the troops of the first line.

Among the Russians counsel seems to have perished and wisdom to have vanished from the prudent, and they appear to have been "made small among the heathen and despised among men."

In the center the Fourth Corps, which had arrived a few kilometers north of Yentai, was on the 11th and 12th of October forced to give way before the assaults of Nodzu, and were able to escape envelopment on the east only by the energetic work of Mischenco's Cossacks.

General Dembowski's flank detachment, consisting of twelve battalions, sixteen sotnias and thirty-two guns, which was probably meant to operate with the western group, was at first directed to march on the right bank of the Hunho to Tchanchan, which was to be reached in two days. This town was fifteen miles from the nearest troops of the western group and was to be turned into a double bridge-head.

In the evening of October 10th the front line of the Third and Sixth Japanese Divisions extended from the Mandarin Road south of Wulitaitsy by Orrtaitsy to Tatusanpu. The Fourth Division, in two columns, reached Yukiatientsy and Huakiatun respectively. The First Japanese Cavalry Brigade had advanced to Sandepu, and by means of patrols pushed over to the right bank of the Hunho, had established the enemy's presence in strong force at Tchanchan.

Dembowski's detachment made a fruitless attack, with a few companies, on the First Japanese Cavalry Brigade, at Sandepu, on October 11th, and pushed forward a few weak detachments to Tschukuanpu and Kukiatsy. The main body remained inactive at Tchanchan.

During the night, October 11th-12th, fighting was resumed, after a brief pause, almost along the whole front.

The First Japanese Guard Brigade and the Fourth Guard Regiment wheeled round from Manhuapu and Pakiatsy toward the main position of the Fourth Siberian Army Corps, and waited on the Bajisan and Maorrschan for the Third Guard Regiment to come up. Colonel Kasa protected their flank and rear with the cavalry regiments of the Guard and Second Division.

When the Russians began their retreat, the Second Japanese Cavalry Brigade, which remained at Daodiaschan, hung on to the retreating Russian left wing.

Dembowski's detachment remained at Tchanchan on the 13th, though the First Japanese Cavalry Brigade evacuated Sandepu on the morning of that day and departed for Holientai, to secure the flank and rear of the Fourth Division. The brigade repulsed an attack of Russian cavalry at Holientai by dismounted action. It is not certain to what extent the Russian cavalry of the right wing took part in this combat.

The cavalry of the Russian right wing and Dembowski's detachment did not support the attack of the Sixth Siberian Army Corps on October 14th. The former did not even prevent the

First Japanese Cavalry Brigade from advancing temporarily from Holientai with the object of taking the right wing of the Sixth Siberian Army Corps under artillery fire. General Dembowski seems to have started rather late from Tchanchan on the 14th; it was afternoon when his foremost troops occupied Likiatun, Fukiatschuantsy, and the country north of the latter place.

The First Japanese Cavalry Brigade, on October 15th, reinforced by one or two battalions, moved from Holientai somewhat south, apparently with the object of gaining the Russian right flank, and in the evening occupied Likiatun, which was voluntarily evacuated by Dembowski's detachment. The latter had evidently the intention of drawing closer to the Sixth Siberian Army Corps, but did not get beyond Fukiatschuantsy and Yamantapu on October 15th. Between it and the Sixth Siberian Army Corps stood one-half Orenburg Cossack division at Sankiatsy.

The Second Cavalry Brigade on October 15th advanced from Siaukiahotsy in a northerly direction and reconnoitered toward the Kantuling pass.

The Japanese on October 16th protected their left wing by the occupation of Tatai, Siautai, Taipintschuan, Likiatun with detachments from the Fourth Division and with the First Cavalry Brigade. The Russian attack came to a standstill at short ranges from the enemy in the evening of the 16th.

From Chasseur's "Study of the Russo-Japanese War" we get a slightly different idea of the cavalry work at the Shaho.

At Wanjupuzu Samsonoff seems to have been delayed twenty-four hours. He could not make up his mind whether to attack or not. The Japanese decided for him, for on the 8th of October they evacuated the position and retired to Tuminling. Samsonoff, therefore, changed the direction of his march south and bivouacked that night at Uiniunine, while a portion of his force crossed to the south of the Taitseho.

Even at this date Pensihu was held as little more than an outpost, and if Samsonoff had shown enterprise he could have possessed himself of the position, for on the night of the 9th the Russian advance guard of the Thirteenth Siberian Rifle Brigade drove in all of the Japanese outposts. But the Russians were too slow; and all through the day of the 9th, though the Japanese had been driven from the mountain range of which Kuanling is the center, yet Kuroki had sufficient reinforcements

to enable them to hold the corresponding ridge which stretched from Tuminling to Pensihu.

But even though Kuroki had reinforced his outposts, the position was still critical; for General Liubavine, with five sotnias of Cossacks, had practically turned the position south of Pensihu by establishing himself, on October 10th, on the Japanese rear to the south of the Taitseho. This outflanking attack was pushed with sufficient vigor by the Russians to enable them to seize a position from which they opened rifle fire on the Japanese pontoon bridge and the rear of the Japanese trenches covering Pensihu from the east to the northeast.

Liubavine, in this position, must have yearned for the infantry reinforcements for which, through Samsonoff, he vainly called on Stackelberg and Rennenkampf. They were not forthcoming, and Kuroki, pushing reserve after reserve to the front, steadily drove back the little force which at one time completely turned his flank. By October 12th Samsonoff's Cossacks had been chased back again to the north of the Taitseho.

Pensihu, originally held by a brigade, had now been reinforced until it had 20,000 men, which made it secure against all danger. Ten squadrons of Japanese reserve cavalry were now able to cross to the north bank of the Taitseho at Menchiapu, and coming in upon the Russian infantry at Yuniumu, swept them back with dismounted rifle fire.

Kuropatkin had reinforced the center by adding to it three-fourths of the Fourth Siberian Corps and had placed it under the command of General Zarubaieff.

On October 10th Zarubaieff had reached the heights east of Panlisantse. Mischenco's Cossack brigade had to maintain communications with Stackelberg and cover Zarubaieff's left flank.

On October 11th Zarubaieff was attacked in front and menaced on his right wing by the Japanese forces under Nodzu and Kuroki. He was obliged to withdraw during the night of the 11th and 12th to the heights north of the Chiliho, while Mischenco's cavalry division was continuing to perform its mission. This cavalry struggled with Kuroki's troops on the 12th of October and succeeded in preventing them from carrying out their turning movement against Zarubaieff's left.

Although Zarubaieff was attacked in front on the 12th by numerically superior forces and had both wings menaced, he nevertheless succeeded in holding the entire line.

On the evening of the 12th he received the news of Bilderling's repulse and of Kuropatkin's order to withdraw to a position situated farther north.

On the evening of the 13th the center, having been reinforced, took position to the rear, on a line with Bilderling, and repulsed the attack of the Japanese on the 14th. During the day of the 13th Mischenco's cavalry, which had dismounted, likewise checked the Japanese.

On October 14th Stackelberg's principal forces re-established their communications with the other forces. In this east group the First Siberian Corps was advanced from Fuling, situated eight kilometers east of Mukden, toward the south, on Bianapusa; the Third Siberian Corps and fractions of the Second, Fourth and Fifth Siberian Corps were directed from Fushun toward the Kuanling pass via the Gaukuling pass. Samsonoff's Cossack division was northwest of Bianapusa and Rennenkampf's division was at the Vanfuling pass.

On the 14th Bilderling lost twenty-four cannon, and Shahupu, the center of his position, was taken by the Japanese. The efforts of the latter to obtain full possession of the right bank of the Shaho were finally defeated by the Russians, but without their cavalry being brought into the action, as it should have been.

On Bilderling's right wing the Japanese were likewise driven back. However, they remained masters of Linshinpu, situated on the north bank of the Shaho.

On the night of the 14th and 15th Kuropatkin caused the village of Shahupu, which had been retaken by the Russians, to be evacuated; he was satisfied to hold the part of the south bank east of this village, leaving troops on what is called Lone Tree Hill.

The severe fighting of October 15th-18th, inclusive, was all frontal, the cavalry took no part, although the plain on which the Russian right was operating was very favorable for this arm.

This may be explained in some degree by the fact that Rennenkampf and Samsonoff, two of the most energetic leaders, were in the mountains with their divisions, and Mischenco was withdrawn to the rear on the 14th.

After Shaho, both armies went into winter quarters, but remained in immediate contact separated only by the Shaho, and lay face to face in perfect quiet—barring trifling outpost affairs—till the middle of January, 1905.

[TO BE CONTINUED.]

THE TRANSMISSION OF MILITARY INTELLIGENCE.*

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THE SIGNAL CORPS AND THE COAST DEFENSE.



THE United States, unlike others of the great nations of the world, has never established, and may never need to establish, permanent fortifications on the land frontiers, since the real frontiers are the seas. But even without the obligation of defense against neighbors to the north and south, the vast extent of the coast imposes upon the country a duty which can but grow greater as population and wealth advance and as the speed and fighting powers of navies increase.

Size of ships, the turbine and new types of motors are bringing alien shores yearly into more intimate relations and are making sea attack more easy, more swift and, perhaps, more probable, while the weight of floating batteries, the number, capacity and speed of merchant vessels and their great transporting power, swarms of rapid and dependable auxiliaries, and, possibly, the dirigible airship, leave all but strongly and permanently protected coast without the hope of adequate defense in war, except by a navy whose duty at the outset may call it into distant seas. Indeed, the probability of the absence of the navy at the very moment when coast defense becomes most necessary is so strong as to amount to a certainty with a powerful and aggressive fleet; a fact that is well pointed out in a passage of the President's last message to Congress. In this he says:

Parrying never yet won a fight. It can only be won by hard hitting, and an aggressive sea-going navy alone can do this hard hitting of the offensive type. But the forts and the like are necessary so that the navy may be foot loose. In time of war there is sure to be demand, under pressure of fright, for the ships to be scattered so as to defend all kinds of ports. Under penalty of terrible disaster this demand must be refused. The ships must be kept together and their objective made

*Continued from November JOURNAL.

the enemies' fleet. If fortifications are sufficiently strong no modern navy will venture to attack them so long as the foe has in existence a hostile navy of anything like the same size or efficiency. But unless there exists such a navy, then the fortifications are powerless by themselves to secure the victory.

The plea is here primarily for the navy, but it stands as well for efficient coast defenses, and since the key-stone of the defense is the fixed artillery position, it will be well for the country to remember that these and their accessories require in the building as long, perhaps a longer time, than the battle-ship itself. It follows that dispositions for the national defense cannot be delayed until hostilities begin, or even until the cloud of war no bigger than a man's hand appears upon the horizon. The plans must have been perfected long ere this, and the fixed defenses completed and the lines of intelligence communications made ready. All this must be done during the leisure of peace, and the work must cover all zones of danger, since no man knows where the blow will fall. If the work of general defense is stupendous—as it must be in order to be effective—this fact is but one more, and the most cogent, of all reasons for its timely undertaking.

It is not, however, the object of this paper to enter upon a full discussion of the great question of national coast defense—which must be left to abler writers—but rather, it is the purpose to consider it in such detail only as may serve to point out its relation to the nerves of the system, that is, to the lines of signal communication or the lines of information. A general survey of the field seems necessary before the value of these lines and of the work of the signal corps of the army in connection with the defense can be estimated and understood.

Regarding the defense of the seaboard of the United States, it appears clear in retrospect that the inertia which for years followed the close of the Civil War and prevented the making by the Nation of any serious effort to protect the country from foreign attack began to give away, a quarter of a century ago, to the demand for an efficient navy. The growth of the navy in turn emphasized the need of protected harbors and of permanent defenses, and as the fortifications required soldiers to man them, attention was directed more and more strongly to the personnel of the defense. Finally the coast artillery was given a working, if still skeleton, organization, an efficient armament and satisfactory equipment were added, systems of fire control and direction were devised and at least partial lines of information installed. There remained to be organized, however, two impor-

tant factors of the defense, namely, the coast patrol, which, as will be later seen, has been systematically taken up by the navy, and second, the vast and important factor of defense by the mobile army.*

For convenience in considering what follows, it is assumed that in war the coast defense, which †“Combines the military and naval dispositions and operations necessary to resist a naval attack on any part of the coast line”‡ may be divided into five factors, each related to the other in operation and all dependent upon co-ordination of action for the full assession of their value. These are, first, the fixed and floating defenses of the artillery, consisting of the armaments, submarine defenses and material, coast defense and scout ships, torpedo, submarine, patrol and picket boats; the personnel, including all troops assigned to duty in connection with the fixed defenses.

Second, the general defense troops of the Regular or Volunteer Army, or of the organized militia, not including the supports of fixed positions. Third, the coast patrol. Fourth, the lines of information. Fifth, the navy, placed last as having little to do with the subject of this paper.

Although each of these factors supplements the others, it is evident that the one which binds them all into a working whole, and without which the other four will have rather less cohesion and connection than so many reeds shaken by the wind, is that of the lines of information.

To arrive at a proper understanding, however, of the extent and character of the lines of information necessary to keep in brain touch the elements of the defense of a great sea-board like our own, it will be well to first outline the general scope of the defense and to indicate the part that will be played by the other factors in war so far as the writer may be able to do so. The first of the factors to be considered is that of

THE FORTIFIED POSITIONS.

It may be said, in general terms, that the permanent defense of a coast consists in the adequate protection of a number of distinct positions which from their importance to the country or

*It is understood that the matter is receiving the consideration of the General Staff associated with officers of local knowledge and experience.

†Drill regulations for coast artillery (provisional).

‡The writer submits the following plan and estimates with diffidence, for he has not seen those of the General Staff, and what follows merely gives what is believed to be a probable plan of defense and estimate of numbers based on the admitted requirements of a position of the first class.

value to the enemy must be guarded against injury, occupation or capture. Such positions are either actually or potentially guarded permanently by a number of fixed defenses, the fighting or tactical units of which constitute a chain of command whose units are the artillery district; the battle command, the fire command and the battery. The artillery defense, as a whole, is thus made up of a series of tactical areas or districts, each measurably complete and independent in itself, but separated usually by considerable distances from the others, and the whole kept in touch by lines of information, which form a chain encircling the country.

On the coasts of the United States there are seventy-eight separate forts where modern defenses are installed or are in process of installation. These forts, or artillery posts, usually comprise several batteries; and when the defenses are completed, in accordance with adopted plans, the number of officers required to serve them will be one thousand nine hundred and eighty-five, and of men forty-seven thousand seven hundred and nine* for one relief alone, a personnel of, approximately, fifty-thousand troops, merely to man the fixed defenses and work the guns, without allowance for relief or absentees. It is evident, therefore, that in the event of a serious war the fixed defenses alone will require a force of artillerymen considerably greater than the total strength of the Regular Army as now authorized by law.

The positions referred to are grouped, on the Atlantic seaboard, into the artillery districts of Portland, Portsmouth, Boston, Narragansett, New London, Eastern New York, Southern New York, Delaware, Baltimore, Potomac, Chesapeake, Cape Fear River, Charleston and Savannah. On the Gulf into those of Key West, Tampa, Pensacola, Mobile, New Orleans and Galveston, and on the Pacific Coast into those of San Diego, San Francisco, Columbia and Puget Sound. Twenty-four in all, without taking account of future requirements of the Philippine and Hawaiian Islands or other territory of the United States. It is evident that, for purposes of control as well as of defense, these districts must be kept in communication not only with great centers of population and with the capital, but with each other, and that under certain probable conditions of war the chain of defense from Portland (Maine) to Galveston, from San Diego to Puget Sound, or even from Quoddy Head to the Straits of

*See "Proposed Distribution of Coast Artillery," &c. Government Printing Office, 1907, September.

Fuca, must be kept in constant and immediate touch by telegraph.

But before entering upon consideration of the lines of information necessary to keep in correspondence the strategic and tactical positions of this vast extent of seaboard, it becomes advisable first to consider the second factor of coast defense, which may be called

THE MOBILE ARMY OF COAST DEFENSE; OR GENERAL DEFENSE TROOPS.

It is probably evident that the most necessary factor of the land defense of the coast, after the artillery, is the mobile army, and it will be unnecessary here to insist upon its importance, since without it there can be no real and substantial protection, except at those positions which have been selected beforehand for fortification. But even if the fixed defenses could stand alone, which, of course, they cannot do, they will of necessity form but a partial and interrupted protection to any extended seaboard and leave open to attack many important towns and serviceable harbors that may be used by an enemy as a base or as coaling and supply stations. It is obvious, moreover, that a country offering to attack some five thousand seven hundred miles of coast line,* indented with innumerable minor harbors and anchorages and dotted with important towns that invite destruction, cannot protect all its vulnerable points by costly and extensive armaments and as a consequence that the minor positions must be otherwise defended or left to shift for themselves. While the navy remains within reasonable distance of the coast these minor positions will be free from danger, but, as has been said, a navy, if efficient, will not remain at home; and it follows that in a serious war protection for the less important positions must fall to the care of such of the floating defenses as may be withheld from distant seas and to the troops of the mobile army, aided by such batteries as can be hastily constructed and armed. Such partial defenses may not prevent attack and local injury, but they can, at least, prevent destruction and an occupation that may provide

*The Atlantic seaboard from Quoddy Head, Me., to Cape Florida is 2043 statute miles; the Gulf coast from Cape Florida to the Rio Grande is 1852 miles; the Pacific coast line from the Mexican Boundary to the Straits of Fuca is 1810 miles. But if we include the indentations of the coast to the head of tide water the lengths are, for the Atlantic coast, 36,607 statute miles; for the Gulf coast, 19,293 miles. The figures for the Pacific coast are not at hand, but for Alaska they are 26,376 miles.

the enemy with a naval base and perhaps threaten invasion of the country at large.

The need of a mobile army in coast defense is not, however, confined to the protection of the lesser positions and harbors unprovided with effective fortifications and armament, for it is to be remembered that coast fortifications of to-day, unlike the permanent works of an earlier time, look only toward the sea, and of themselves are helpless against land attack; hence they must be protected at flank and rear from approach by hostile troops and landing parties.* Indeed, it is perhaps not too much to say that in these days any coast attack, beyond a mere demonstration or bombardment, the damage from which is usually overrated, will not be made by ships alone. The lessons of recent wars tend to show that naval attack only, though it may cause considerable damage, can produce but little effect upon the ultimate result of a war, unless combined with land operations, by means of which the defense can be overwhelmed and the objective destroyed or occupied, together with the surrounding regions.† It appears, then, that in war the country must be prepared to prevent the seizure and occupation of any one of many important points, both fortified and unfortified, of our long seaboard. This implies the existence of a large mobile force so placed as to insure on the one hand the safety of exposed positions by proper dispositions of troops immediately needed, and on the other by concentration of the major part of the mobile troops in reserve at strategic positions of the coast or possibly of the other frontiers.

In the defense by a mobile army the plan adopted may well be somewhat as follows: The Atlantic, the Gulf and the Pacific seaboard will be divided into defensive areas that may here be

*An officer of the Austrian general staff in an article translated for the *JOURNAL OF THE MILITARY SERVICE INSTITUTION* and printed in July, 1907, remarks regarding our coast defense: "Fortifications are to be found in the vicinity of the larger cities or good harbors, but these provide for a bombardment seaward. Should a hostile fleet once obtain a landing of troops at an unprotected point, and such points are numerous along the extensive coast line, the coast fortifications could be easily attacked from the rear, and would, in a short time, be at the mercy of the enemy. Any war-vessels seeking the protection of these fortifications would doubtless also be lost. * * *

"Even though the Pacific coast line is, to a large extent, composed of high, steep cliffs, rendering a landing impossible, there are many unprotected harbors; for instance, Gray Harbor, Monterey Bay and Port Harford. To repel an invasion of an army at such points a numerous land force would be needed."

†In this connection the remarks of Capt. Clint C. Hearn in an article on "Fire Control and Direction for Coast Artillery," published by the Department of Signal Engineering, United States Signal School, Fort Leavenworth, 1907, are well worth attention.

called defensive zones, the extent and boundaries of which will depend upon strategic, geographical and economic conditions. These zones will not, as a rule, be coextensive with military departments, since they depend upon different conditions and lie mainly along the sea; nor will they be under the orders of department commanders, but will be controlled by their own general officers, acting presumably under one chief. In each zone there will be organized in war a mobile force adequate not only for zone defense proper—that is, for land defense of fixed positions, unprotected harbors and other vulnerable points within the zone itself—but for service with other troops who, upon the certainty of hostilities, will be mobilized and held as a general reserve. Within defensive zones there will be placed before the outbreak of war a sufficient number of men of the Regular Army and of the organized militia to form a nucleus of the force that will be required.

It should be evident that of this force the men most needed in the preliminary work of the defense will not be coast artillerymen alone, but engineers, and especially signal troops, since the first step in mobilization will be the establishment of lines of information.

No doubt the men of the organized militia, especially those mobilized in seacoast States, will, when needed, be partially trained as regards the defense of fixed position, since it is probable that in the future, as during the past year, the organized militia will have taken part annually in exercises and maneuvers of the coast artillery. Moreover, the militia, under the new law, will be able to take the field as United States troops within a few days after being called out by the President for service during the nine months authorized by law, and will be ready at once for service on the coast. It is, therefore, believed that the peace training of the militia is to fit it for coast-defense work in its several forms; this training should be widened in scope to embrace not only the lines of information, but to include the duties of signal troops in campaign, in the collection and transmission of intelligence by all of the many methods that are employed by the signal corps in the field.

It is certain that if so trained the small quotas of State troops, since they will be among the first sent into the field, will be of the utmost value to the defense at a time when the lines of information will be urgently needed in the organization, disposition and control of newly mustered levies. The State troops, now become

national troops, together with the signalmen of the Regular Army, will undertake the organization of additional signal troops from the volunteers.

It is not probable, however, that the total force of militia thus mobilized for national defense will exceed the authorized strength of the Regular Army; and the two combined will doubtless constitute a force far too small for ultimate defense in a serious war. It follows that recourse will be had, as always in this country, to the volunteers, who will then be drawn not merely from the threatened States within defense zones, but from the almost inexhaustible supply of men of the interior States, which have no frontier to defend. If a great struggle threatens and it becomes necessary to put forth the strength of the country by calling to the colors the larger part of the mighty reserve available for national defense, it is certain that the total number of men of the ultimate levy will be so enormous that occasion for mobilization of the whole can hardly arise. But be this as it may, it is evident at least that, though the *levé en masse* need never be resorted to in this country, the force that will be called to the national defense in a great war will be no small thing, and the work of turning it into an efficient army and of supplying it with an adequate force of technical troops properly equipped for the field will require the best efforts of every trained man of the service. It is, however, impracticable to calculate beforehand and until the probable magnitude of the war is known, the number of men who will be needed for national defense, but the following estimate is suggested *in the event of a war of the first magnitude in which two powerful maritime powers combine to attack the country on both the Atlantic and Pacific seaboard; or to so threaten the coasts as to compel an adequate force of general defense troops to be called to the colors on the seaboard of both oceans.*

In making this estimate it is assumed that for the protection by land of a single strategic position of the first class—needless to say which one—it is presumed that an army corps composed of three divisions will be necessary; that is, a force of some forty-five thousand or fifty thousand effectives of all arms of the service. Probably but two, or less, of these three divisions will be tied to the defense of the position proper, and the remainder held as a reserve for the protection of any threatened part of the coast or other frontier.

Turning now to the military conditions that surround the

twenty-four artillery districts into which the seaboard is divided, it appears that the number of these that will be considered positions of the first class and require the support of the large force indicated above, and the number of those in subordinate classes that need a smaller force for their land defense will readily be seen. Without entering, however, into a detailed calculation of the strength of the force necessary for any particular one, it will suffice to say that the fourteen districts of the Atlantic coast will, in the opinion of the writer, require an *average* of twenty thousand mobile troops for security against an enemy, ten thousand of whom may be regarded as zone troops and supports of the fixed positions of the district proper, and ten thousand as a reserve of the mobile army and to be concentrated at such place either within or without the zone as may be best suited strategically to the defense of any threatened part of the frontiers, either land or water. By this it is not meant that twenty thousand men will be actually mobilized in every zone for each artillery district within the zone, but merely that this number be considered the normal allotment of general defense troops, for mobilization and use where necessary. This average is less than half the force that will be called to the colors in a defense zone which embraces a position of the first class, and if it is a criterion of the number of men needed, means that the mobile army of the Atlantic seaboard should have a strength of some two hundred and eighty thousand men. Similarly, that the Gulf coast, with its six artillery districts, should be expected to send to the colors at least one hundred thousand men—probably more than will ever be necessary for this coast alone, but giving to both the Atlantic and Gulf a maximum of three hundred and eighty thousand men of the mobile defense, which is not thought to be excessive. Similarly, the Pacific coast with its four districts would supply by averages about eighty thousand troops, a force far too small in such a war as has been supposed, and which, considering the remoteness of the Pacific from the great centers of population, the non-existence of the Panama Canal for several years to come, and the difficulty of transporting troops and war material across the continent, should be increased to at least two hundred thousand men to secure the safety of the shores of the western ocean.

In making this estimate it is, of course, understood that there are several districts, such as Savannah, Key West and Galveston, which on account of the terrain will need little or no

immediate mobile defense; but, on the other hand, there are many important positions requiring protection that are not included within artillery districts; Cape Cod and the lower Delaware Bay as examples, and it is thought that for both zone and reserve defense the estimate is moderate. In addition, not one but several localities will require the full number of men allotted to positions of the first class.

If the above estimates are approximately correct it appears that in a great foreign war the United States will be forced to mobilize some five to six hundred thousand men for the general defense, half of whom will be massed along the coasts at such positions as may be best suited for concentration and protection, and the remainder held within the zones;* but this total is the maximum of probable war requirement, for it is hardly conceivable that any considerable additional force will be necessary within the country itself; and if a mobile army is needed on either the northern or southern land frontier, it may be secured by a proper disposition of the general defense troops thus mobilized. Although the full strength estimated may be never called out, if a great war should come, in which the United States (on land) is forced to serious defense, it is believed that a force of at least five hundred thousand men, in addition to one hundred thousand regular troops, must be mobilized.†

It is needless to say that of this total force the Regular Army and the organized militia can form but a small part; and that the militia organizations within the threatened zones cannot be expected to supply more than one artillery relief, supports of fixed positions and perhaps the first or emergency line of the zone defense. But if the enlisted force of the coast artillery is increased to reasonable strength it may be that the regular troops and the militia called to the colors will be all that are necessary for the protection of the country at the outbreak of war, and possibly for some time thereafter; perhaps even until the end of the struggle, should our fleets be success-

*It seems that these defense zones of the Atlantic coast will require, roughly speaking, 50,000 men each; two will need 30,000, and from the Chesapeake south 60,000 at least should be estimated. A total of 270,000 for the Atlantic. On the Gulf, east of the Mississippi, probably 30,000 will suffice, and west of that river 20,000 men, a total of 50,000 for the Gulf. On the Pacific, for the reasons stated here, not less than 200,000 should be estimated for defense. A total of 520,000 men in all, sufficiently near the estimate above reached.

†To be entered here. In this estimate the needs of the country alone are considered, no account is taken of the necessities of the foreign possessions.

ful, for it must be remembered that but a small part of the mobile troops will be actively required until the fleets are swept from the seas; unless, indeed, the navy is allowed to become so weak in ships that a division on two oceans becomes impracticable. In that event, if threatened by allied fleets on both the eastern and western coasts, the weight of the resources of the country will be demanded, though the full strength of men for the general defense will not even then be called to the colors. At present the coast artillery is given a strength only about one-third sufficient for one relief at the guns; the effective of that part of the organized militia of coast States, trained in artillery work, is only sufficient to bring the artillery men to the strength of one relief; and as to the signal troops, those of the army are so overburdened with their present work that it is hopeless to expect them to perform successfully new duties, and those of the organized militia are too few and ill-supplied to form an efficient reserve. It seems that the true interests of the country require that these conditions be changed.

To return now to the army corps mobilized for the defense of a position of the first class. This, it has been assumed, will be made up of three divisions: the first of these divisions, and perhaps the second, will be composed of the organized militia of the State or States of the zone requiring defense; and in those States in which the organized militia is numerous and efficient, it is believed that the first two divisions can be easily and quickly mobilized;* but the third division will require more effort and much longer time for its organization since it will be composed mainly, if not entirely of volunteers. A considerable period, however, may be very well conceded to this work, since the first two divisions, if capable of taking the field immediately, will be ample for early needs; and when mobilized will be assigned to the zone defense proper, and not required to move far from base or rendezvous. It is evident that these divisions will require ample strength in engineer and signal troops, field and horse-artillery, and a due proportion of cavalry to erect and defend the field-works on the land fronts of fixed positions, to establish and maintain lines of information, to check sudden attempts at coast landing, and to perform the duties of mounted troops in the field.

There can be little doubt, however, that the general levies

*Within twenty-four hours, it has been estimated. A high authority has placed mobilization at forty-eight hours.

will at first be weak in these very arms, since they are of necessity almost non-existent with the organized militia of many of the States in ordinary times; and, therefore, that the main reliance will be upon the infantry of the organized militia. These, too, in the early days of a struggle will be weak in transport, staff, quartermaster, ordnance and commissary departments, and lack the assistance of technical troops, a condition that will hamper the defense, give to the zone troops little mobility, and compel them to remain tied to their base or semipermanent camps. But this condition will doubtless be corrected as time goes on, though its existence at first will multiply the lines of information and the duties of signal troops. It is certain, therefore, that the communications by which both zone troops and reserves will be linked together and to the artillery should from the first efforts at concentration be ample and effective and so continue, for without them the whole army of the defense will become a mere aggregation of inert units.

As has been said, a large proportion of the mobile troops of the coast defense, probably more than half of the total, will be formed into reserves and held at concentration camps or at positions strategically important, ready to move to any threatened point. Of these armies there will be (say) four on the Atlantic, one on the Gulf, and three on the Pacific coast. In other words, the mobile troops will be prepared in war to act both offensively and defensively, and at least half of the total will be ready to move from its own to any threatened zone and co-operate with the zone troops in the general defense. Further, it is believed that, except when employed as supports to fixed positions, whether confined to their own zones or placed in concentration camps as general reserves, the mobile troops of the general defense will remain under the control of their own officers, either of the artillery assigned to the command of zones or of the army at large.

A third class of troops who, if not large in number, are at least of vital importance in coast defense, are the supports of artillery positions proper. These men, placed at stations suitable to the defense of fixed positions against land attack, will act in concert with the coast artillery, and be under the immediate command of artillery-officers, presumably of posts or districts, since it is evident that they must be kept as directly in touch with the officers fighting the positions as are the marines aboard ship. The supports, no doubt, will be drawn from the

zone troops proper and be composed of the first and best men called to the general defense, that is, of such troops of the Regular Army as can be assigned to the duty, and of the flower of the organized militia. They will be made up almost entirely of infantry and field-artillery, with as many machine-gun batteries as may be available, and to these there should be added a far larger proportion of signal men than is usually considered necessary for an army in the field; since upon these men will fall the service of information, not merely with other elements of artillery defense, but with the fixed positions, the zone troops, coast patrol, and with the navy.

As to the strength of the artillery supports, little need be said here, but it is evident that the number of men assigned to each post and fixed position will be governed by local conditions and mainly dependent upon the terrain. Larger and more exposed position will require as supports proper at least one regiment, perhaps even one brigade of general defense troops, who will be placed under the the control of the district or of the battle commander in action; and the smaller posts a battalion each under the senior artillery-officer present. It is evident that the strength of the supports will depend also upon the position occupied by the defense troops of the zone. The lines of information of these troops will be those of the field army, and mainly dependent upon the buzzer, field telegraph or telephone, and visual signaling.

From all that has been said it should appear that the mobile troops of the three groups above indicated will stretch over many miles of country, and operate under widely varying conditions. It follows that even more than for a well-organized army the lines of information for the, at first, somewhat unorganized forces of the general defense must be ample and widely extended. Indeed, except in emergencies, these lines will be more necessary in the early days of the defense than later when the machine moves smoothly, but at all times the mobile troops, without an adequate service of information, will have rather less direction and mobility than a collection of tortoises. Properly laid, the lines of information will not only form a network throughout the defense zone, but will tie each zone to the others and provide the entire army with the lines heretofore shown to be essential in the field. Headquarters of the defense and those of zone troops will be fixed at the places best suited tactically for the purpose, and as it is reasonably certain that

these positions will lie at centers of commercial activity, they will be distant from the camps of divisions and brigades and still farther separated from the smaller commands and detachments, from the artillery district headquarters and from observation stations, the outposts of coast defense; yet with all these must commanding officers of the mobile forces be kept in constant and immediate touch, as well as with the military commanders of departments, should the latter not be in command of the general defense—and with Washington. In turn, division and brigade headquarters must be kept in communication with dependent and outlying commands; these with the observation stations and coast patrol; and the latter given the power to communicate readily with the floating defenses, with artillery districts and with ships.

From all that has been said it appears that for the mobile coast army there will be needed systems of information even more extensive and varied than considered necessary for a field army in campaign; and it follows that the proportion of signal troops to line soldiers in coast defense should be increased. But even assuming that not more than the admitted proportion of two and one-half signal men to each one hundred can be provided, it appears that in a great war there will be organized and equipped at least thirteen signal regiments of one thousand men each for the service of the lines of information alone, and in addition a considerable number of balloon troops. Certainly not less than fifteen thousand men in all in addition to the signal corps of the army, which should, of course, maintain the ratio of two and one-half per centum to regular troops of the line.

It is hopeless to suppose that the signal corps of the regular establishment can ever supply more than a leaven for this great mass; or even that the militia possessing signal troops of approved efficiency can provide more than the framework of the organizations that will be required; and it follows that the signal troops mobilized for war must be filled in by volunteers, and therefore by men drawn direct from civil life. But excellent and abundant as the material for these troops undoubtedly is among the men engaged in the electrical and mechanical pursuits of the country, these men before they can be of any real value must be made into soldiers. To accomplish this purpose there must exist in peace a sufficient number of signal troops in the Regular Army and in the organized militia to leaven and instruct the whole body of volunteer signalmen; but the signal

corps of the army will never have the numbers or the opportunity when war comes to take upon itself alone the training of those volunteers; the assistance of the organized militia must be asked and given; but this training must be quick and effective, and therefore be performed by men who have themselves been drilled in peace in the methods of the signal corps of the army. Unfortunately the trained militiamen are at present few and confined to the signal organizations of a small number of States, and even where signal organizations exist, they are not always given, be it said without disparagement of the troops themselves, the strength in numbers, the equipment, nor, up to now, the training that will make them immediately valuable in coast defense on the outbreak of war. This condition should be changed, for it needs no argument to prove the plain fact that in war the lines of information, both military and commercial, in so far as the latter relate to the general defense, must be controlled and operated by soldiers, and that the number of men needed for the purpose will be far larger than can be supplied by any probable increase of the regular establishment. It follows that the military authorities of the States, especially those chiefly concerned in coast defense, should be asked not merely to do more than they have done to increase or create signal corps that will be of real service in war, but to encourage these troops to take each year their full share of instruction in the service of the lines of information of the coast defense.

*The third factor of the coast defense, and that one which depends for its value, if possible, even more closely upon the lines of information than others, is the

*The Austrian writer, before quoted, draws the following, if somewhat amusing, picture of a descent upon the Pacific coast, its consequences and preventives:

"The enemy could, in all probability, make the first landing with a division, and for permanent occupation of the country would have available a relatively larger force, which could follow without difficulty. There is no doubt, however, that as soon as the enemy had made a successful landing and the Americans had come to a realization of their danger, the whole nation would rise as one man to expel the intruder. Whether it would be possible to raise millions of fighters from their population is questionable. In the absence of arms and equipment for such a force, many months would elapse in its preparation, probably a whole year. This army would be undoubtedly far inferior to the trained and disciplined veterans.

"To prosecute a war against the enemy's forces with American volunteers would be all the more difficult, for the reason that the former, having made a landing with comparative ease, could select its terrain for further movements. The three Pacific coast States are bordered by the great mountain chain of the Sierra Nevada, and to the east of these mountains lies desert, or partly desert, land, the Cordillera Basin and the Colorado tableland, stretching for a distance of two (?) kilometers. The intervening territory between mountain and sea constitutes a genuine fortress in which the invaders could feel as much at home as on their native land, and which offers all the means for subsistence.

*If the army were followed by a swarm of laborers, and, in fact, there are thousands

COAST PATROL.

It will perhaps appear to a student of the present condition of our defense that the important subject of coast observation, or coast guard, to go back to an expression of the early years of the last century, has not received from the army the attention it deserves. It is true that designs for wireless and signal stations have been drawn up by the signal corps, and, in one or two instances, the structures have been erected within artillery districts; but great stretches of coast, often containing good harbors and magnificent lookout stations, occupied by the executive branches of the Government, at which valuable information of friend or enemy at sea may be gathered, remain not only unprovided with signal stations, but remain generally unprepared for use in war, which is a condition that should be changed. Of course it is assumed that when needed these outposts will be given necessary equipment; but for this no provision has yet been made by the army. This state of unpreparedness in regard to an important factor of the defense is believed to be passing away, however, and its existence at present should not be attributed to lack of foresight or to negligence on the part of the army, but considered due, first, to the fact that coast defense has not yet been taken up seriously as a whole, and second, to lack of means and multiplicity of duties imposed upon the small signal corps of the army by whom the systems of coast patrol should be planned and lines of information be installed and operated, when authorized. But if the army has not yet considered in earnest the formation of a coast patrol, the navy is giving careful attention to it, and regulations have recently been promulgated by which an apparently thorough and efficient service will be created. The matter is important, and as the steps taken by the navy are probably not yet entirely familiar to the army, a few partial extracts, which should be of interest, are quoted from the regulations regarding the naval coast patrol.

FIRST. By these regulations the coast is, for observation purposes, divided into naval districts under command of an officer; these districts are required to "Provide means of obtaining and forwarding information

of them already, the force could soon be independent of reinforcement from abroad. To wrest this land from such a foe would be a difficult matter for the militia, and it could only be accomplished by a preponderating force. The cost of such an army to the Americans could not be measured; the figures would be staggering when compared with the figures of former wars. * * * It is the serious duty of America to lose no time in perfecting her defense and guarding against a surprise.

to and from the coast and of communicating with vessels of our own navy," and in time of war they are "to obtain and forward information relative to the movements of vessels off the coasts" and "to promote intercommunication of orders and information between the coast and vessels at sea."

The composition of the force of each district will be such as the Navy Department may direct, depending upon the existing resources at the outbreak of war. For this purpose the department will receive the necessary control of personnel and of the naval material of the various States, the revenue cutter and the lighthouse services, the coast and geodetic survey, and Bureau of Fisheries and the co-operation of the Army Signay Corps, the life saving and marine hospital service and the Weather Bureau.

The naval patrol stations will comprise a line of signal and lookout stations along the coast, and will be made up of:

- (a) Stations established by the Navy Department and manned by the navy.
- (b) Co-operation stations, belonging to other executive departments and manned by employees thereof, such as those of the lighthouse, life-saving, Weather Bureau and army signal services.

Certain designated ones of these stations will be provided with the means of communicating with vessels by signal, being in some cases equipped with wireless telegraphy. So far as practicable, all stations will be connected with the headquarters of the naval district by telegraph or telephone.

The personnel of any naval district will be largely made up by the assignment of officers and men appointed or enlisted from naval militia or volunteers who are residents of that district and have acquaintance with the locality in which they are to be employed, and of officers and men of other executive departments than that of the navy who may be either appointed or enlisted in the navy or whose services may be placed at the disposal of the Navy Department by order of proper authority.

Forwarding Information.—The commandant shall cause all information received from any source at headquarters, which bears directly or indirectly upon the progress of military operations or the conduct of the war, to be transmitted to the office of naval intelligence at Washington. So much of the same information as relates in any degree to the army shall likewise be forwarded to the commander of each artillery district of the army included within the limits of the naval district; and such as affects a neighboring naval district shall be forwarded to the commandant of that district.

Co-operation with Neighboring Commands.—The commandant shall enter a hearty co-operation with officers of both army and navy, holding neighboring commands, with the object of promoting the success of such military operations as may be in progress; and he may expect a like co-operation on the part of those officers.

Co-operation with Army and Navy.—Officers of the navy shall co-operate freely with one another, and with the officers of the army, in all matters affecting the military interests of the United States. In the interchange of information they shall take the most direct means of communication without regard to what, under other circumstances, would constitute the official channels. They may expect a like co-operation on the part of the officers of the army.

Systems of Communication.—The means of communication between the various units of the military force of the United States in the neighborhood of the coast shall be:

- (a) International code of signals; (b) Army and navy code of signals; (c) Wireless telegraphy; (d) Telegraph or telephones; (e) Recognition of signals; (f) Local signals.

International Code.—All vessels attached to a naval district shall be provided with means for making and reading signals by the International Code, excepting such as are so small as not to afford proper facilities for making the hoists; such naval patrol stations as may be designated shall also be so provided. At each defensive sea area there will be at least one army signal station under the control of the artillery district commander, likewise prepared to use the International Code. In the absence of instructions to the contrary, the plain code will be used without ciphers or additions.

Army and Navy Signal Code.—All vessels belonging to a naval district, and such naval patrol stations as may be designated, shall be provided with an adequate force of signalmen, trained in the use of the army and navy signal code, and with proper means for making signals by that code, including large and small wigwag flags for day use, and either torches, colored or "winker" lights, Ardois, or some other efficient system for night signaling. All signal stations of the army will likewise be prepared to use that code.

Wireless Telegraphy.—The policy as to wireless telegraphy in the vicinity of the United States coast shall be that, in order that it may be most efficiently employed when needed, the use of this method of communication shall be reduced to a minimum. Naval vessels and shore stations shall, therefore, abstain from the use of wireless telegraphy, except for important messages and for such tests of apparatus as may be ordered by the commandant. Should there be several wireless telegraph stations on shore in any vicinity, such station as may be designated by the commandant of the naval district shall be charged with the duty of doing all sending; but all stations should constantly "listen in" with a view to insuring greater certainty in the reception of messages and to establishing communication where the designated station does not respond; army stations shall always have the right to send messages upon official business pertaining to the War Department, when of such importance as to warrant transmission by this method. Should it be required at any time, the commandant of a naval district or senior naval officer present shall apply to the artillery district commander, who will authorize the use of an army wireless station under his charge for promoting the efficiency of naval district work.

The telegraph or telephone will afford the principal means of communication between headquarters and the respective shore stations. Government lines shall be employed when practicable. The commandant of the naval district shall furnish promptly by wire to the artillery district commander all information he may receive from any source which is of interest to any degree to the latter, and may expect to be similarly furnished with any information obtained through sources pertaining to the army.

Recognition Signals.—The Navy Department will prepare a code of private recognition signals, which, at the outbreak of war, will be made known confidentially to the commanding officers of all naval vessels and shore stations, as well as to the army officers commanding sea-coast defenses.

Local Signals.—Where doubt exists as to the efficacy of the patrol of the limits of any defensive sea area, the senior officer of the harbor entrance patrol shall arrange with the army officer commanding the harbor defenses for a system of signals by which to indicate that a vessel has authority to be within the area; the employment of such signals should, however, be avoided unless essential.

Repeating Signals.—In order to secure greater certainty as to reading of visual signals, and to provide for repetition to all forces in the neighborhood of a defensive sea area, every International Code signal conveying information of general interest, such as reports of hostile or suspicious vessels or the suspension of navigation, shall be repeated by each vessel or station; the repeating signal, which shall take the place of the answering pennant, shall be kept flying until repeated by every other vessel or station in sight, and then hauled down. Signals intended for single vessels or stations shall be answered with the answering pennant only. The senior officer of the harbor defense patrol, acting in co-operation with the army officer commanding the shore defenses, shall make such rules regarding the repetition of wigwag and night signals as local conditions require, to insure their transmission to all vessels and stations in the neighborhood of a defensive sea area.

Signals Denoting Enemy.—The approach of an enemy shall be communicated by the most expeditious method available, using wireless or other signals.

Opening Fire.—Should a public vessel or shore station open fire with projectiles upon any vessel, it will be sufficient warrant for any other armed force within range to open fire and render all possible aid in capturing or destroying the vessel fired upon. While it is proper for the commanding officer of any armed force discovering an enemy to communicate the fact, with details, as promptly as practicable, to the senior officer of his service present and the commanding officers of other armed forces in the neighborhood, the most essential requirement is that the efforts of the whole available force be directed immediately to the capture or destruction of the enemy. The fire with projectiles is equivalent to a signal that an enemy has been discovered, and further signaling may be deferred until a favorable opportunity presents itself.

Suspicious Vessels.—The presence of a suspicious vessel or vessels should always be reported by wireless or visual signal, with all available details.

Friendly Vessels.—The presence of public vessels of the United States shall always be signaled by wireless or visual methods unless such vessels are themselves already in communication. Neutral vessels or United States merchant vessels need not be reported unless there is special reason for so doing.

Merchant Ships.—When they seem to offer a possible source of military information, shall be communicated with and questioned. Inquiries made by them may be answered if such action does not involve important information of a confidential nature, but under no circumstances shall any information be given, which, if communicated to an enemy, could possibly be of aid to him.

Night Passage Across Area.—When it is contemplated to permit the passage of public vessels across a defensive sea area at night, the army officer commanding the land defenses shall, if practicable, be previously notified of the fact; when previous notice cannot be given, care will be taken that the vessels display the recognition signal a

sufficient time in advance to make known their friendly character to the fortifications, and they should, when practicable, await the "response" of the fortification before attempting the passage.

Suspense of Navigation.—The commander of the land defenses included within any defensive sea area has the right, upon notifying the senior officer of the harbor entrance patrol, to suspend navigation of all vessels other than the armed vessels of the navy within the whole or a part of the defensive sea area for the time necessary to perfect or repair the submarine defenses. When such suspension is necessary, the artillery district commander may be expected to give notice of the fact to the senior officer of the harbor entrance patrol, at least twenty-four hours in advance; but when the necessity for such suspension arises without having been foreseen, it may be signified by the display of the appropriate International Code signals from the army signal station; when such signal is seen by the respective guard boats, or repeated to them in case they are beyond direct signal distance, the prohibition shall be put into effect immediately, the first opportunity being taken to report the facts to the senior officer of the patrol.

* * * * *

Thus it appears that a patrol of the coast has been excellently well planned by the navy, who have included in this service officers and men drawn from the various executive departments of the Government, from the naval militia and from the volunteers, all of whom will be under the control of the Navy Department in war; it cannot be doubted that the navy patrol thus organized will form a most valuable auxiliary to the coast defense. A glance at these regulations, however, will show, if any doubt can exist on the subject, how closely the services afloat and ashore are interwoven in the duties of this patrol; yet in the system outlined, doubtless for the reason that the army has thus far taken no steps toward the organization of a patrol, the co-operation of the land forces appears merely incidental. It seems, however, that the army should, without delay, change its attitude in regard to the coast patrol and become something more than a mere auxiliary in this factor of defense, and through a properly organized patrol of its own creation, ally itself fully with the navy in this important work. In fact, without the full co-operation of the signal corps and the participation of troops trained in the service of lines of information, and in establishment of signal stations and in the use of flying telegraph and buzzer lines, the telephone and field wireless cables, visual apparatus, and perhaps the balloon, it is hard to see not merely how the best methods of gathering intelligence in war can be employed by a coast patrol, but how, when so gathered, this intelligence can be transmitted to the centers of control, to artillery fixed positions and their auxiliaries, and to the mobile

army, from distant observation stations, coast islands and light-houses, or from the floating auxiliaries and passing ships, with the speed and certainty which alone make such information valuable.

The service of security and information in coast defense, as in the field, implies, first, the collection of military information or intelligence; second, its transmission; and third, its correlation and use. In regard to the first of these elements it may be said that the collection of information is primarily the duty of the coast patrol and of the military services; but in war it will become as well the duty of every man of the Government service, both civil and military, and, indeed, of all of the people of the country. But although important information will come from many sources, and no matter what the source, must be transmitted to proper authority; yet incidental intelligence, like incidental soldiering, is merely auxiliary to the organized service, as the continued value of this service will depend upon a properly organized corps of men who will transmit the reports of trained observers, from the service, signal and observation stations, from light-houses and other Government establishments, from the floating auxiliaries and ships as well as from chance sources of information, and from the thousand watchers of the coast, that intelligence upon which depends in war the attitude of the defense. But both judgment and experience in regard to the information transmitted will be needed by officers and men in charge of this service if a constant condition of unrest and excitement is to be avoided at inshore terminals. Who can doubt, for example, that information received at the centers of control will determine the attitude of the army of the defense in threatened zones; and perhaps its ability to prevent surprise or repel attack; that news or no news, often equally important, from the coast will govern the preparedness and vigilance of the zone troops and supports and keep the artillery men at the guns or give them release; that, in short, a well-organized service provided with trained men skilled in the use and maintenance of lines of information will relieve the defense of the greater part of its strain in the absence of the enemy; multiply many times its efficiency in his presence; and permit the smaller force to do the work of the larger. While, on the other hand, an insufficient service of information, handicapped by slow, inaccurate or faulty transmission, will plague and worry the defense with useless anxieties and alarms, if it does not even

lead on to disaster. It follows that the transmission of intelligence, which is the second element of the service of security and information, is a duty of vital importance which should be intrusted only to trained men under military control supplied with the best known appliances for this service, and should never be left to the chance efforts of any irresponsible person who can use a key or a wireless instrument. In other words, that the section of the coast patrol to which the *duty of transmission of information is intrusted should be composed of men trained in naval and military signaling and in the methods of the signal corps of the army*. In addition, it is presumed that signal men of the army and of the militia will be detailed aboard scout ships, patrol and picket boats and other floating auxiliaries, for duty as wireless and visual signal men, but this is a detail that need not be considered here.

With the use that will be made of the information when received, which is the third element of the service of security and information, the coast patrol has no concern, since this will depend upon commanding generals, and the reception and correlation of reports upon staff-officers at headquarters, presumably signal officers, whose duty it should be to formulate and weigh the information transmitted.

From what has been said it appears that the coast patrol will become in future one of the strongest arms of that service of security and information upon which so much dependence is necessarily placed in modern war, and in consequence that this patrol when organized will be thoroughly efficient in numbers, personnel, organization and equipment, and that its men, who are frequently placed at lonely stations and required to act upon their own initiative, will be not only steady, well-disciplined soldiers, but in addition will be intelligent, keen and watchful men, skilled as observers and trained in the use of the telegraph and of mechanical appliances; and above all, that they will possess that judgment which seldom blunders in its work. Fortunately for the country men of this character are many in civil life, and will be found in abundance among the volunteers called out in war. As to the organization of a patrol, it should appear that none better can be found than that approved by the experience of the signal corps of the army whose duties are similar if not identical with those of the coast patrol, though more widely extended. The equipment, too, should be that of the regular service. In short, it is believed that the coast patrol of the

army should be organized, trained and equipped by the signal corps, and that the collection of information, so far as it relates to this service and its transmission in coast defense, should, as with the army in the field, be placed under the charge of the chief signal officer of the army, acting through a subordinate officer in immediate control at the front. The men of this organization cannot, and need not, be actually present during peace, except those of the executive departments of the Government (already bespoken by the navy) and hence the actual enrolment of the personnel may be left to a later period; but plans of organization should be undertaken without delay. These will look to the formation in each military zone of a patrol of the necessary strength, made up in peace from the organized militia of the zone, who shall receive each year as much training as practicable in coast signal work, in connection with the signal troops of the regular establishment. This training of the patrol will include the installation and use of signal equipment of all kinds; the operation of field and station wireless; the establishment of observation stations, the service and maintenance of lines of field telegraph and buzzer; and, in general, in the collection and transmission of military information by all approved methods. There seems no reason why this instruction should not be given to the signal organizations of the militia, as is now done for the artillery and infantry of the State troops in connection with the yearly exercises or maneuvers of the coast artillery of the army. To do this would simply mean the extension of the present valuable training of the militia, to include instruction in the service of a coast patrol within certain prescribed limits and would give to the signal men of the militia training in a branch of signal corps work of great importance to them, especially in those States which border the sea. Furthermore, it is believed that the plans for an organized coast patrol will provide that in war the signal men of the militia be formed into companies and regiments with the signal troops of the Regular Army and with the necessary number of technical men of the volunteers taken from telegraph operators and telephone men of civil life in such proportion that the whole shall form an effective service.

The number of signal men required in war for coast patrols, however, will be governed by the character of the coast they are called upon to guard and cannot be stated generally. But prob-

ably at least one-half of the total patrol should be trained as signal troops.

As a further step in preparation for defense it is suggested that the signal corps of the army be authorized to provide at Government reservations, such as light-houses, marine hospitals and life-saving stations, and those of other executive departments, suitable as lookout stations, magazines of material of the less perishable sort which will furnish part of the means of establishing observation stations at the outbreak of war. In addition, island stations and light-ships should be connected by cable—out of use in peace and with the ends prepared for periodic testing to insure their perfect condition—with interior or mainland stations whence the military field telegraph could rapidly be extended at need to commercial offices. In this way many permanent and important lookout stations of the civil departments of the Government which are always on duty, Point Judith as an instance, will, when needed for coast-guard service, be ready for almost immediate use. At mainland stations of the Government should be placed signal stores of a bulky character, telegraph or telephone material, wire, lance poles, supplies for electrical batteries, flags and other apparatus for the use of the communications both visual and electrical in war.

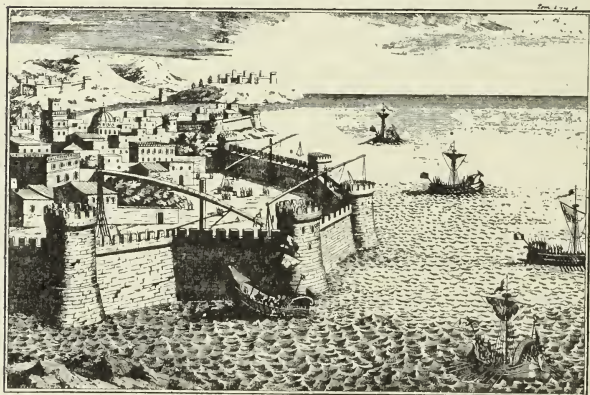
These preparations should not be put off to the day of stress sure to precede hostilities, for if the stations and material needed are ready, the men necessary to use the equipment and construct lines of field telegraph and buzzer can be quickly placed on duty in an emergency. It is probable that most of the valuable observation points of the coast are now occupied by Government stations of one service or another and could safely be provided with necessary material; but others are so circumstanced that nothing should be done by way of preparation until hostilities threaten, since, if not owned by the Government, magazines cannot wisely be established at them; such points can, however, and should, be carefully marked, their character made known and, possibly in the case of very important localities, material for their conversion into signal stations be stored at the nearest artillery post.

It appears then that without the limits of the artillery districts it will be sufficient in peace for the signal corps to establish magazines and lay or store cable at stations of the executive departments important to the coast patrol. But within the limits of artillery districts not only should such magazines be

established, but each of the twenty-four districts should be given signal and wireless stations of the types authorized—a matter that will later be considered. As to the dependence that will be placed by the coast patrol upon the balloon, either captive or dirigible, so little is really known of their practical value, especially of the latter, that not much can be said; but it should certainly appear that if ever the captive balloon proves useful, it will be at coast signal stations within artillery districts where everything lends itself to this service.

Enough, perhaps too much, space has been given to the coast patrol, but the subject is new and interesting and sufficiently important to warrant careful attention. With no factor of the defense is the signal corps of the army more intimately connected; and it should be evident that without signal men a coast patrol will be feeble indeed.

[TO BE CONTINUED.]



CORINTE D'ARCHIMEDE SELON POLYBE ET PLUTARQUE QUI SERVOIT A HARPONNER ET A ENLEVER LES VAISSAUX

THE MILITARY SHOE AND THE MILITARY FOOT.

BY MAJOR EDWARD L. MUNSON, SURGEON, U. S. ARMY.



DURING a period of about six weeks there were six cases of septic cellular infection of the foot admitted to sick report at Fort Sheridan. These infections were severe and required treatment in hospital of from one to three weeks' duration. They had their starting point in abrasions of the foot, caused by ill-fitting shoes. The cases occurred during ordinary garrison routine, and naturally minor blisters and chafings did not come under medical notice.

The shoe concerned in these cases was the ordinary garrison shoe. As will be seen later, the marching shoe has the same inherent defects as the garrison shoe and may fairly be included in the same criticisms. The amount of disability which would have occurred in this command, had it been in campaign or route marching, can only be conjectured, but it would unquestionably have been large. Further, if inquiry is made among the men required to wear this shoe, it will be found that a large proportion of them do not like it because it does not fit their feet. The constant tendency of soldiers to wear shoes secured from unauthorized sources illustrates this point.

As a specific evidence on the matter in question, it may be mentioned that the post quartermaster sergeant, who has been on duty at this post since April, 1905, estimates that in this period he has issued approximately 3000 pairs of shoes, and states that it is his belief that about two-thirds of the men receiving them were dissatisfied with them through their being too tight across the instep. Certainly such disability and discontent as result from the use of this shoe show that it is unsatisfactory. There must be some cause for this, and equally, there should be a remedy.

As at present supplied, this shoe is fairly well made of good material, is offered—theoretically, at least—in a sufficient variety of sizes, and in general cut appears to leave little to be desired. Generally speaking, however, it does not fit the soldier. It does not fit the soldier because the shoe is too tight across the toes, too tight across the instep and too tight around the ankle. Even

a broad sole may have too low an upper. In other words, the last of our army shoe is too slender for its length; and it frequently happens that if a soldier secures a shoe long enough for him, it is too tight, and if it is loose enough for him, it is too long. With either alternative, the practical result is expressed in blistered feet and disability.

The amount of disability from sore feet in our army is not only excessive, but, undoubtedly, is in large part quite unnecessary. Any tendency toward making the soldier's foot accommodate itself to the issue shoe, rather than to supply a military shoe for the military foot, should be discouraged. This is obviously a truism. Nevertheless, existing conditions would seem to render it very desirable that attention should be called to it.

Under present conditions, two or three days of hard marching in government shoes would keep a larger proportion of a dismounted command away from the firing line than would be lost at that line from battle casualty in a severe action. Certainly it is wiser, cheaper and better to provide a proper new shoe costing a few dollars than to continue disabling soldiers whose cost to the Government is expressed in many hundreds; and disabling them most just at the time when their services are expected to pay for training and maintenance. The question of cost of footwear, within reasonable limits, should not be considered. A thoroughly satisfactory army shoe would always be worth all it costs. Economy in shoes means ultimate waste in men. Surely, if it is not too much to pay \$150 for a good horse to bring the cavalryman's saber into action, a small fraction of that sum could well be devoted to securing good shoes, which would put the infantryman's rifle when and where it is needed. Nevertheless, a proper military shoe need not be much more costly than the unsatisfactory article at present supplied, for the improvements necessary to remedy present defects can be largely secured without expense.

The difficulty with the present shoe is threefold: First, it is not properly issued; second, it is not always available in authorized variety; third, it is not built on proper lasts.

Under present methods of issuing shoes, the fault rests both on the Quartermaster's Department and company officers. It is not too much to state that neither perform their full duty in this respect. The Quartermaster's Department seems to concern itself only with supplying the sizes asked for by the company officer—or as near as they may be in stock. Instead of fully

co-operating in the effort to secure properly fitting shoes for the soldier, its official attitude in this respect would almost seem to approximate indifference. This is, of course, unintentional, but practically it amounts to the same as if it were real. Witness the present quartermaster regulations for issue, which require that articles called for by the soldier shall be sent to him in barracks, without "trying on" in a place where variety of size is available. Surely, these lose sight of the interest of the soldier in having a shoe which will fit and the interest of the Government in having a soldier who can march. Nor do its local representatives in posts always cheerfully permit of subsequent and, perhaps, repeated exchange until a fit is secured. Certainly these matters are important enough to be considered before the convenience of the quartermaster-sergeant, who now appears to be the sole beneficiary of the regulations governing the manner of making issues.

Regarding the company officer, he does not ordinarily concern himself in this matter other than to take the word of the soldier, in making up requisitions, as to the size required. The soldier, however, may not know the size required, may be misled by the variations in lasts of different contractors, and finally does not early appreciate the changes in the shape and size of his foot directly caused by military service. Certainly it is not too much to expect the company officer to take a vital interest in the way his men are shod. And as the cavalry officer personally oversees the grooming and shoeing of his troop horses, so the infantry officer should have a direct and constant care of the feet of his men—and for exactly the same reason. Nor can an officer earn his pay any better than in making sure that, at the critical moment, ill-fitting shoes will not bring to naught the results of months of painstaking effort by officers and men in drill and target practice.

Clearly, the remedy for this fault of issue is simple, and is to have each soldier fitted with shoes at the quartermaster storehouse, and not in barracks, where no other sizes are available for trial and where desirable change is strongly discouraged by official routine, as well as personal inconvenience. This fitting should take place in the presence of his company officer, who should encourage the soldier to keep trying on shoes until he gets a satisfactory size, rather than to allow him to be browbeaten by an impatient sergeant into accepting footwear which, on trial, he recognizes as not fitting his foot, even though he

may have in good faith put in for such a size on requisition. The soldier is the best judge of whether his footwear fit or not. He is paying for his shoes out of his own money, and has a personal right to a satisfactory article. Further, it is highly to the interest of the military service that he should be aided to secure such a satisfactory article. At present, it frequently happens that in this respect the interests of the soldier and the Government are both disregarded. No better way of securing the most available fit can be found than that of "trying on," customary in every shoe store. While this method is not always practicable in the field, it is quite practicable at all times for troops in garrison, and time and labor used in fitting proper shoes will be more than made up by the time and labor saved in keeping troops off sick report and ready for full duty as far as their feet are concerned. If present facilities for "trying on" shoes at the quartermaster storehouses are not good, they can very easily be made so.

The second point is that the Quartermaster's Department, through its post quartermasters, does not always carry a full variety of sizes of shoes in stock at places where troops can draw them, from time to time, as required. Perhaps the case would be better expressed by stating that rarely does the Quartermaster's Department have on hand, in any post at all times, the full assortment of sizes theoretically available for selection by the soldier. It is not conceivable that a civilian shoe dealer could conduct a successful business if he did not carry a sufficient stock to ensure a fit to any and all of his customers. That this is not done in the military service is common knowledge. If a specific instance is required, attention is invited to the fact that, for example, in respect to the marching shoes, the quartermaster at this post, on December 31, 1907, was unable to furnish ten of the seventy-five authorized sizes, as follows:

Size $5\frac{1}{2}$, C, D, EE and F.

Size $9\frac{1}{2}$, EE.

Size 10, D.

Size $10\frac{1}{2}$, C, D and E.

Since December 31st many shoes have been issued, but there is no expectation that the constantly depleted stock will be replenished until about July next. What variety of sizes will remain available for choice by enlisted men desirous of drawing marching shoes about May or June is left to inference. This condition is not mentioned in the least sense of criticism of

the local post quartermaster, for the Quartermaster's Department in this post is, and has been, better supplied with shoes and other articles of apparel than of any other post of which the undersigned has had knowledge in many years. The point is brought out to emphasize the fact that the comfortable idea that the soldier has seventy-five varieties of footwear available, out of which he ought to be able to make a satisfactory selection, is illusory rather than real, and that a laudable desire to prevent overstocking may readily be carried to the over-extreme in which desired and necessary articles are not available when needed.

A small surplus of footwear in each size should certainly be maintained at each post. This would undoubtedly cost a little more money at first to create the reserve stock, but after this reserve was created the cost of replenishing it would merely be that of the shoes now issued. It is false economy to save the shoe and spoil the soldier.

The next point to consider is the fact that, even with careful attention to fitting, the present type of shoe cannot be made properly to fit the feet of a large proportion of soldiers. The defects in this instance are structural, and remedy implies change of lasts. Those at present used were developed through long experience with the adult male foot of the military age in civil life. But because these lasts are satisfactory in civil life is no reason for believing that they equally represent average physical types for the foot of the soldier. In fact, quite the opposite is the case, and the sooner the fact is appreciated that such a thing as a distinct type of "military foot" exists, the sooner will the proper military shoe be developed.

This "military foot" is distinct from the general average civilian type both as a result of the direct selection of recruits from the better physical type of the general civilian class, and by the subsequent marked muscular development of the foot of the recruit resulting from marching and from the general physical training brought about by the foot and leg exercises of the setting-up drill. It is generally understood that these exercises strengthen the muscles of the foot and ankle, but apparently the fact is overlooked that in strengthening muscles they are necessarily increased in size, and that, so far as those of the foot and ankle are concerned, the special military exercises primarily intended to make them stronger must also make them—coinci-

dently, proportionately and inseparably—larger in dimensions at right angles to the direction and pull of the muscle fibers.

It may be accepted that for the same sex, relatively same age and racial type, the length of foot bears a close relation to body height. The slight, undeveloped man, unhesitatingly rejected by the recruiting officer at sight, and the accepted candidate well up to the army standards of weight and chest measurements, if of the same height, wear approximately the same length of shoe. This rule has its individual exceptions, but applies generally to large groups. In evolving the ordinary commercial shoe lasts, the slender, thin foot of the army candidate rejected for poor physique, with its muscles undeveloped from little use in walking and exercise, must and does receive full consideration in making lasts to meet the trade in ready-made footwear. It thus comes about that these thin, poorly-developed men, at all times unacceptable to the army from a physical standpoint, nevertheless exert an important influence in determining the general foot standards and shoe models to which it seems to be officially assumed the sturdy, physically excellent soldier can be made conform without inconvenience and disaster. If the shoe were pliant and yielding like a stocking, this assumption would, in practice, bring about no bad results. As, on the contrary, the shoe is a stiff rigid covering which does not readily expand and adapt itself to the conformation of the foot, the above assumption is utterly unwarranted and is unquestionably largely responsible for the great amount of disability from sore feet, which has come to be regarded as the almost inevitable accompaniment of hard military service.

Any retail shoe dealer can give abundant evidence that the thin, undeveloped man, such as would not be accepted physically for the army, can usually wear with comfort almost any shoe long enough for his foot; while the sturdy, muscular, well-developed men, of whom soldiers could be made, must usually try on several pairs of shoes before an acceptable fit can be secured. As the soldier represents a generally physically select class, it is not too much to insist that his shoes should be made on lasts to conform to the general foot type representing that class only, and not on those also incorporating in their general averages the physical deficiencies of those recognized as physically inadequate and unfit to be soldiers.

Another practical point bearing on this question is that a shoe which may be quite satisfactory to the recruit attaining

average recruit physical standards on enlistment will probably be quite unsuitable for the same man after receiving proper instruction in marching and physical training. The reason for this is the enlargement of the foot, not in length but in breadth and thickness, as already mentioned. Not only do the previously little used muscles of the foot and ankle enlarge considerably with marching exercise, but the skin itself becomes thicker and tougher, and a coincident increase of connective tissue and deposit of fat further round the contour of the foot and protect its firmer structure from injury and strain. In other words, the

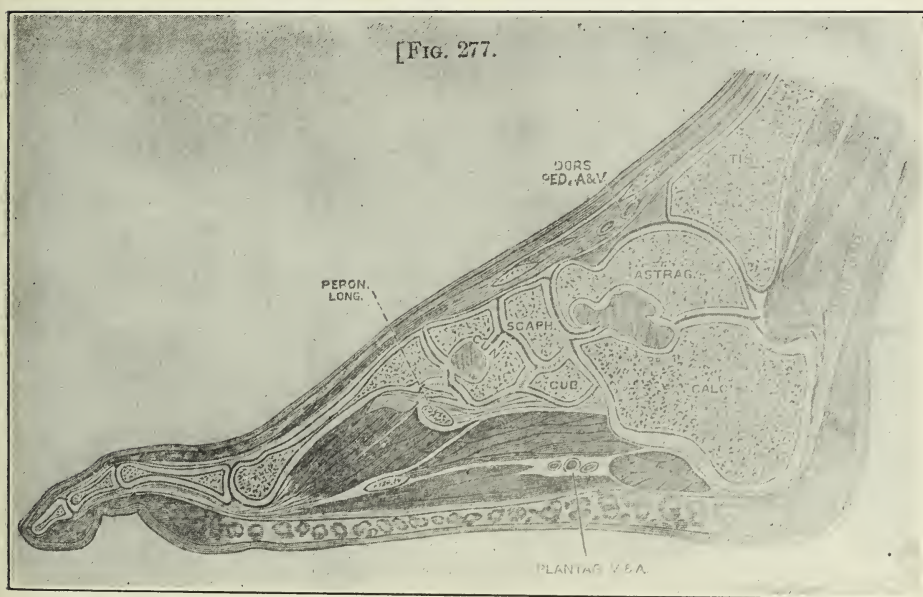
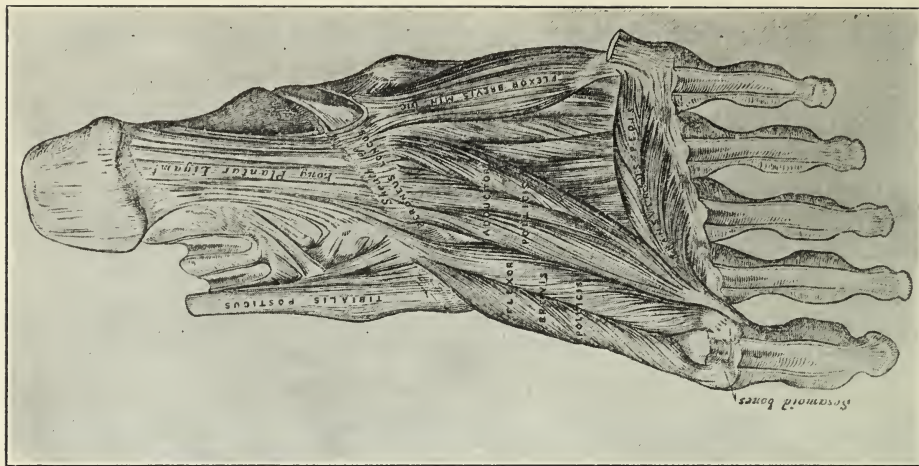
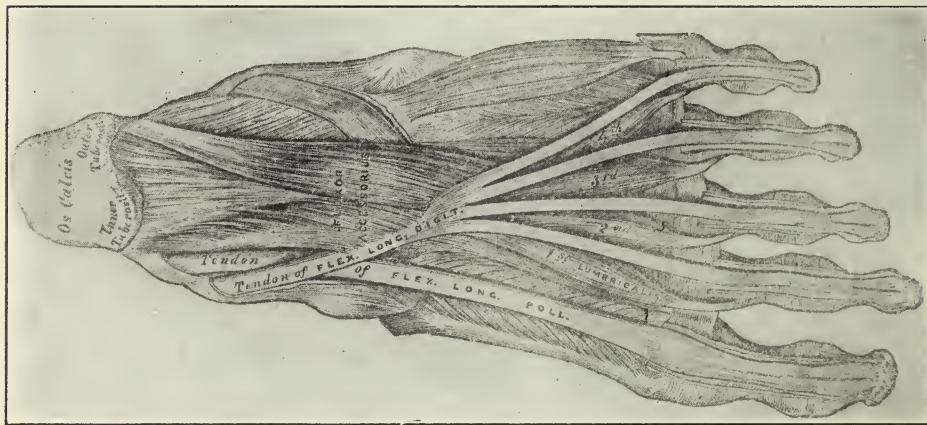
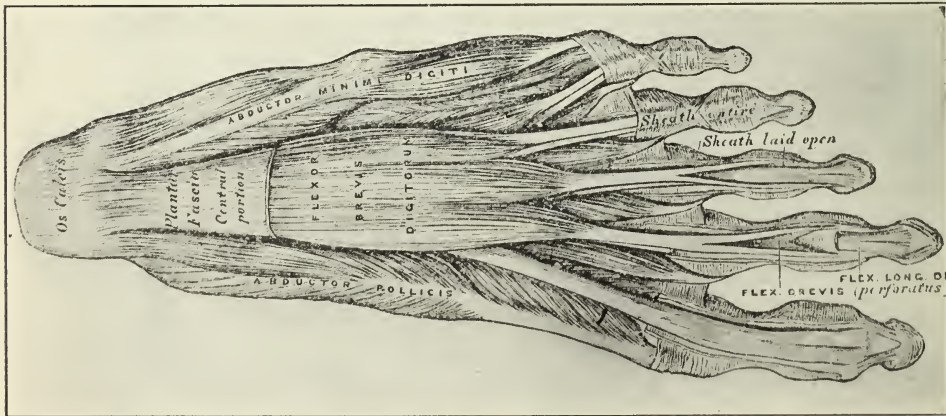


Fig. 1.—Sagittal section of foot and ankle, showing location of the chief muscles whose development alters the size and shape of the foot.

cubical contents of the foot and ankle, expressed in width and thickness, have been markedly increased by military training, although the length of the foot has remained practically the same.

Attention is here invited to illustrations 1, 2, 3 and 4, which are inserted for the information of those who may not have a full knowledge of anatomy. These will show the location and direction of the muscles, and their relation to the bony framework of the foot. It is seen from them that the foot is a long bony arch in which all the important muscles and tendons run



lengthwise. They thickly pad the bottom and sides of the foot, are scanty over the instep, and are entirely wanting at the heel and toe margins. With increase in the size of these muscles, through development from exercise, the foot must necessarily be broadened and its thickness increased in the instep region. As a result of this thickening, due to military training, the instep of the soldier's foot is necessarily wedged against the upper of the shoe, if the latter is built on the usual low lasts intended to meet the needs of the less well-developed civilian foot. The evil result of this wedge-like action on the instep is accentuated by the fact that the weight of the shoe and the overcoming of friction in walking must be taken up on the same region, which suffers from the anatomical disadvantage of having little protection or padding over the bones in the way of muscles or other soft tissue.

Further, use has a tendency to spread and broaden the foot, as any tennis-playing or athletic woman will ruefully testify, and this natural tendency to broaden with use reaches its maximum in the severe and prolonged exercise of marching. If to this natural tendency be added the broadening and stretching force of approximately sixty-five pounds weight of armament, ammunition, spare clothing, rations and equipment which the marching soldier must carry, it is seen that a foot originally broader and more powerful than that of a large part of civilians of the military age has been further removed from civilian average foot-types by special exercise, directly calculated to produce general lateral muscular enlargement, and then is broadened through use and weight carrying.

As throwing an interesting and confirmatory sidelight on this contention for the existence of a distant military foot type, attention is invited to the following illustrations showing the marked and characteristic variations in the type of the human hand resulting from the special muscle development depending on occupation. These illustrations are taken from an article on this subject by Dr. Alfred Gradenwitz, which appeared in the *Scientific American* for December 28th last. (See page 285.)

It is, of course, not intended to maintain that the variation in the type of the human foot from special use reaches such extremes as are above shown to result in the hand from occupation. It is, however, contended that the normal occupation of the soldier—marching, weight carrying and drill—produces such marked and characteristic muscular development as to eventuate

in a special type of foot, on which ordinary civilian patterns of shoes cannot be used without discomfort and disability.

With regard to the broadening of the foot of the soldier under heavy marching order, those who have noted how the feet and toes of the bare-footed Chinese or Filipino "cargador" spread and separate under the weight of heavy burdens will appreciate how great this normal spreading may be, and how much it must increase the stability and foothold of the "cargador."

For a specific example of the amount of foot spreading in the soldier, under conditions of comparison, attention is invited to the series of foot tracings shown in Fig. 6.

The soldier's shoe prevents any such prehensile action of the toes and foot, as is seen in the "cargador," but at least it must be broad enough not to interfere, in any way, with their lateral expansion. If it is not, relative instability, painful compression and abrasions from chafings must ensue. Another practical conclusion from these tracings is that there must be a considerable amount of available space left along the sides of the shoe when it is fitted to allow for inevitable expansion of the foot, laterally, under prolonged marching and weight carrying.

That there must be sufficient allowance of space to prevent the ends of the toes from touching the toe of the shoe, and thereby becoming blistered, is so well recognized as to require no special attention. The usual amount of vacant space in front of the toes allowed by shoe makers is two commercial "sizes," or five-eighths of an inch. With the soldier, whose feet swell and slightly flatten with prolonged marching under burden, this space allowance should be slightly greater. The tracing, Fig. 7, made under moderate pressure, showing the proper relative widths and lengths of the sole of the foot and the sole of the shoe, is therefore probably very nearly, if not quite, correct.

The criticisms of the present military shoe as being ill-fitting relate especially to that part of the shoe covering the foot anterior to the tarsometatarsal joint, which lies just posterior to the line EF on Fig. 8. The region in question consists of approximately the anterior three-fifths of the foot, upon which nearly all the injuries due to badly fitting shoes occur. Abrasions not rarely occur upon the heel, but such abrasions are usually due not to an improper conformation of the military shoe in this region, but to the slipping about and friction of a shoe which is too long, but which is accepted by the soldier in his

THE INFLUENCE OF OCCUPATION ON SHAPE OF THE HAND.



Fig. 1.—Left hand of a smith.

Fig. 2.—Right hand of a shoemaker.

Fig. 3.—Right hand of a typesetter.



Fig. 4.—Left hand of a tailor.

Fig. 5.—Left hand of a pianist.

Fig. 6.—Right hand of a pianist.

will, on reflection, recognize the existence of a general military type of foot, resulting from original selection and subsequent development, as already outlined. This "military foot" is compact, powerfully muscled, high in the instep and plantar arch, thick in vertical section, broad in spread and rounded and smooth in contour. The ankle is large, powerful and muscular. This general description applies whatever be the length of the foot.

Recognizing these general characteristics, so far as the soldiers' footwear is concerned, the problem is to determine exactly where and by how much suitable lasts for the various lengths of the "military foot" differ from the commercial lasts of the same length based on average general civilian measurements. These points can only be determined by properly averaging accurate measurements of "military feet," sufficient in number to eliminate all influence of individual deviation from the military normal. So far as the writer is aware, such action has never been taken in this or any other army. Certainly such an investigation would be at once practical, common sense and scientific, and the slight labor involved in gradually securing the necessary statistical data would surely be well justified by the strategic as well as sanitary importance of the subject, and the past and present highly unsatisfactory status of the soldiers' footwear.

To accomplish this, careful foot measurements should be taken, as the opportunity offers, of not less than 10,000 white soldiers, all of whom should have been in the performance of usual military duty for at least six months previously, and who should preferably belong to a dismounted branch of the service. If such measurements are taken for the colored and Filipino troops, they should be averaged separately, as the feet of these troops possess marked racial differences from those of white soldiers. These measurements should be compiled in groups of the same numerical size to avoid error in calculation of averages, and the averages thus obtained should be used as guides for the creation of military lasts upon which to construct the military shoe for the military foot.

It remains to determine exactly how such a special military last may be developed. Usually a last is built from seven measurements, as follows:

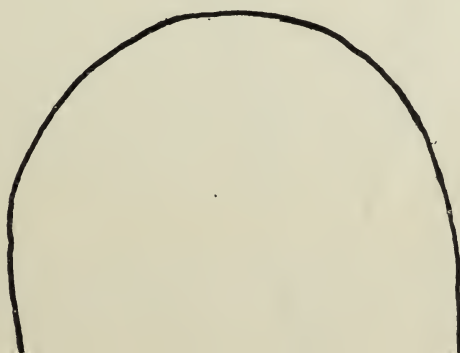
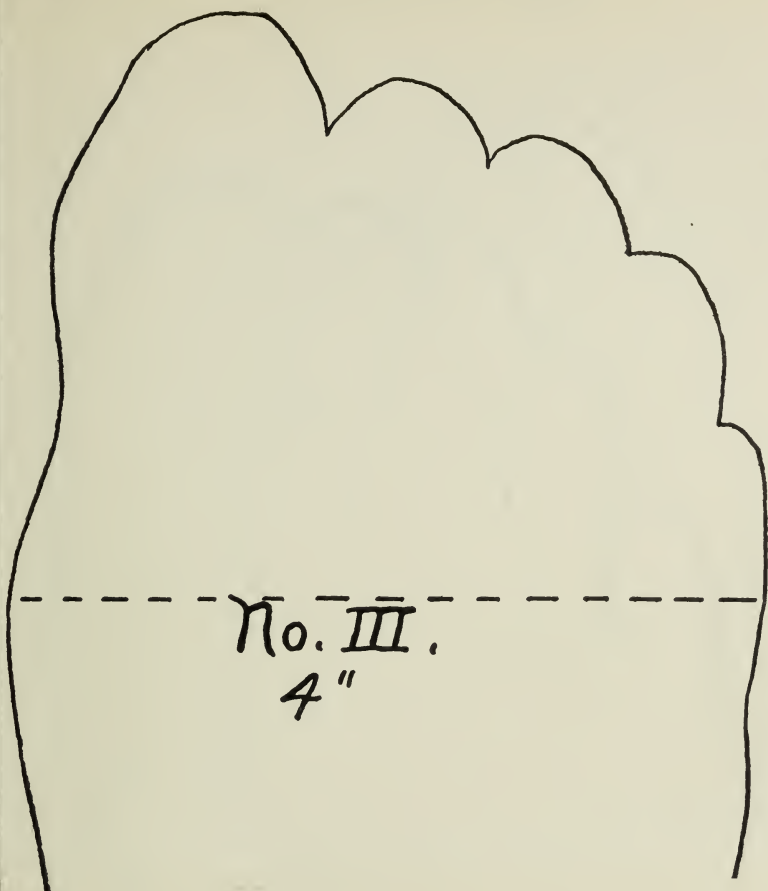
1. Maximum length of foot.
2. Maximum breadth of foot under pressure.
3. Circumference taken over the ball.

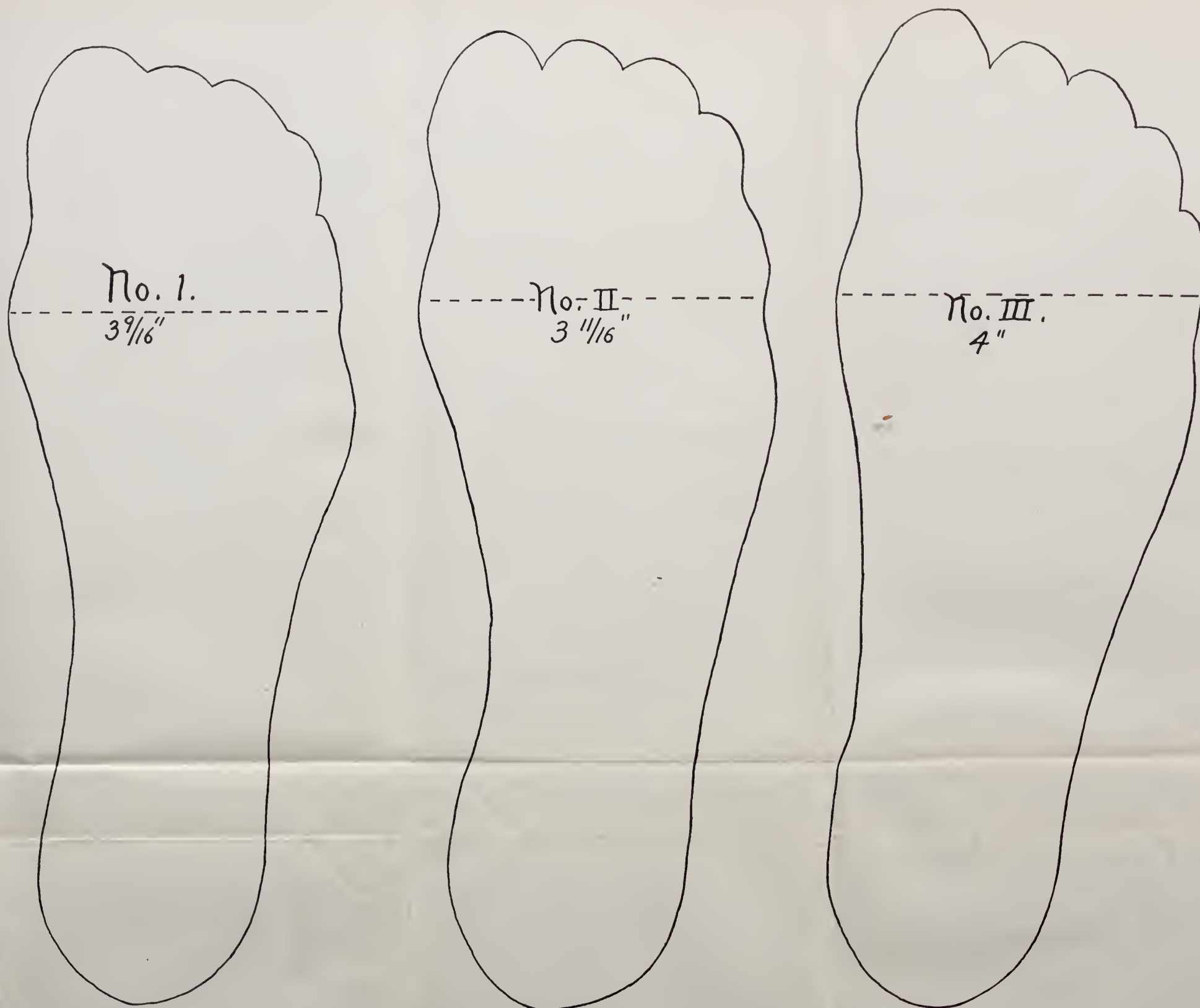
4. Circumference taken obliquely over the heel.
5. Circumference over the low instep.
6. Circumference over the high instep.
7. Circumference of leg just above ankle.

Shoe makers will make a good fitting pair of shoes for an individual from measurements 1, 3, 4 and 5, but they also require a foot tracing, from which measurement 2 is determined. As the posterior two-fifths of the present shoe may be accepted as constructed on satisfactory lines, the measurements which would be required for new military lasts would be those of length, breadth and circumference over ball, low instep and high instep, and around ankle. The Quartermaster's Department standard calls for but one instep measurement, and this single measurement is taken about midway between the low and high instep measurements, which are shown in lines C D and E F on Fig. 8. It is a grave error to consider that the contour of such an important region, especially liable to injury and with scanty muscular protection, can be properly determined with a single measurement. It is recommended that the width measurement be taken under pressure in order to make allowance for the natural spreading of the foot, as it temporarily supports the weight of the body and burden with each step. That this spreading is a matter of much practical importance is seen by referring back to the tracings of the foot (1) at rest; (2) supporting the body weight; and, (3) supporting the body weight together with that of the military equipment, as shown in Fig. 6. These tracings indicate that allowance must be made for approximately $7/16$ of an inch of broadening during heavy marching as compared with the width of the foot at rest, and $5/16$ of an inch as compared with the width of the foot supporting the body weight only. Measurements of foot width taken at rest, as is customary with civilian shoe makers, would thus be misleading for military purposes.

1. *Maximum length of foot.* This should be taken with a foot measure consisting of a flat wooden foot piece, having a high fixed block at the heel end and a low sliding block readily movable between the heel and toe ends. The foot piece is marked off on its margins in a graduated scale, preferably metric, having the zero point at the heel block.

With the foot piece on the floor, the soldier places his foot on it with the heel snugly against the heel block. He then bears his full weight on this foot, while the movable block is slid





No. I.—Made while man pressed right foot firmly against floor, but supported most of his weight on the other foot. No weight carried.

No. II.—Made while man supported practically all his own weight on his right foot. No weight carried.

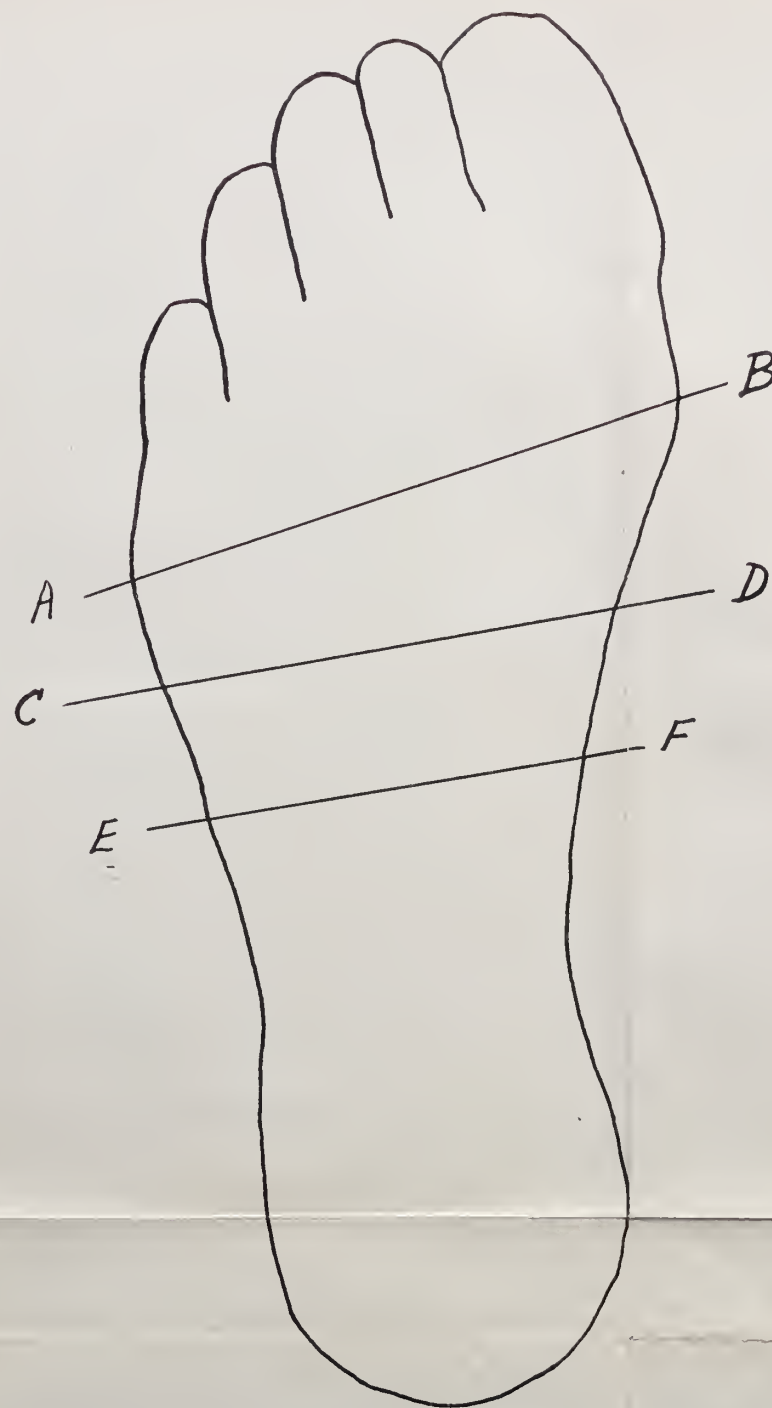
No. III.—Made while man supported practically all his own weight on his right foot, and in addition carried a weight about equal to that carried in full marching order (sixty pounds).

Tracings show broadening effect on foot of weight carrying.

FIG. 7.—INDICATES THE PROPER RELATION OF THE SOLE OF THE MILITARY SHOE TO THE MILITARY FOOT.

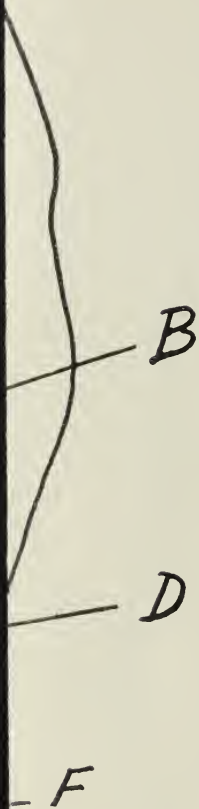


FIG. 8.—LINES INDICATE WHERE FOOT MEASUREMENTS SHOULD BE TAKEN.



A B=Ball measure.
C D=Low instep measure.
E F=High instep measure.

HOULD BE



back until it touches the tip of his great toe, when the length of the foot is read off on the marginal scale before the foot is removed.

2. *Maximum width of foot.* This is taken with the same foot measure by placing the foot across it at right angles to the long dimension of the measure and in such a way that the anterior half of the foot will rest on the foot piece, while one margin of the foot at the ball measure point (see Fig. 8) comes against the fixed block. The soldier now throws his weight

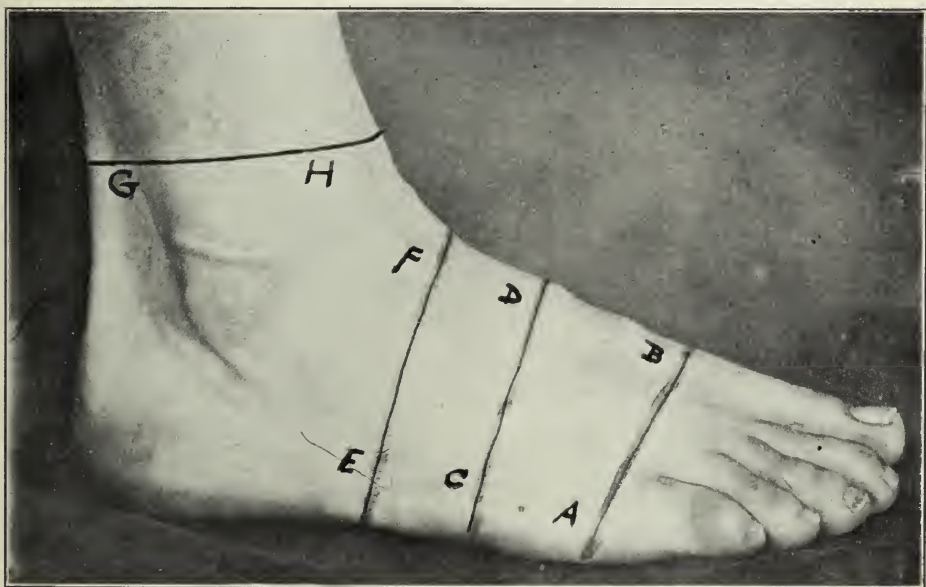


Fig. 11.—Lines of measurement for proposed new military lasts: A B=ball measure; C D=low instep; E F=high instep; G H=ankle.

on this (for the reason already given) foot, and the movable block is slid down until it touches the foot and the width is read on the marginal scale with the foot still in position.

3. *Circumference taken over ball.* This measurement is taken with a linen tape and, like all such measurements, is taken snugly, but without tension sufficient to alter the relations of the parts. This measure is not taken squarely across the foot, but runs somewhat obliquely forward from without inward, as shown by the line A B on Figs. 8 and 11.

It is taken from a point just anterior to the metatarso-

phalangeal joint of the little toe around the foot at a point just anterior to the metatarsophalangeal joint of the great toe.

4. *Circumference over the low instep.* This measurement is taken directly across and around the foot, beginning at a point on the outer margin about half-way between the point of origin of the ball measure (A on Fig. 6) and the prominent tubercle of the fifth metatarsal bone felt a little behind the middle of the foot on its outer border. This line is shown at C D on Figs. 8 and 11.

5. *Circumference over the high instep.* This measurement is taken directly over and around the foot, beginning at the prominent tubercle of the fifth metatarsal bone on the outer margin of the foot (see Fig. 10). This measurement is taken parallel to that for the low instep. It is shown in line E F of Figs. 8 and 11.

6. *Circumference of leg above ankle.* This measurement is taken on a horizontal line, beginning at a point about one-half inch above the upper border of the external malleolus of the tibia. The line is shown in G H of Fig. 11.

All measures should preferably be taken and recorded in the metric system, rather than in inches and their fractions. This is to facilitate the calculations of general averages from a larger amount of individual statistical data, as in such work decimals are much more readily handled than fractions.

To take the necessary measurements, special short linen tapes and cheap wooden foot measures, both marked with centimeter and millimeter divisions, should be supplied. Their cost would be insignificant.

In taking measurements for the purpose mentioned, both feet should, of course, be measured. It would be well to have all measurements verified by another person before being officially recorded.

Regarding the lasts required, there should be a series, as at present, of sizes from five to twelve, inclusive, with intermediate half sizes, and each size and half size should be made in five widths. It will save confusion if these military sizes conform in length to the commercial sizes of the same number.

Having secured a large number of individual measurements of soldiers' feet, the problem now arises as to how these measurements can be practically utilized for military purposes. This is done as follows:

The dimensions of the proposed lasts are determined by

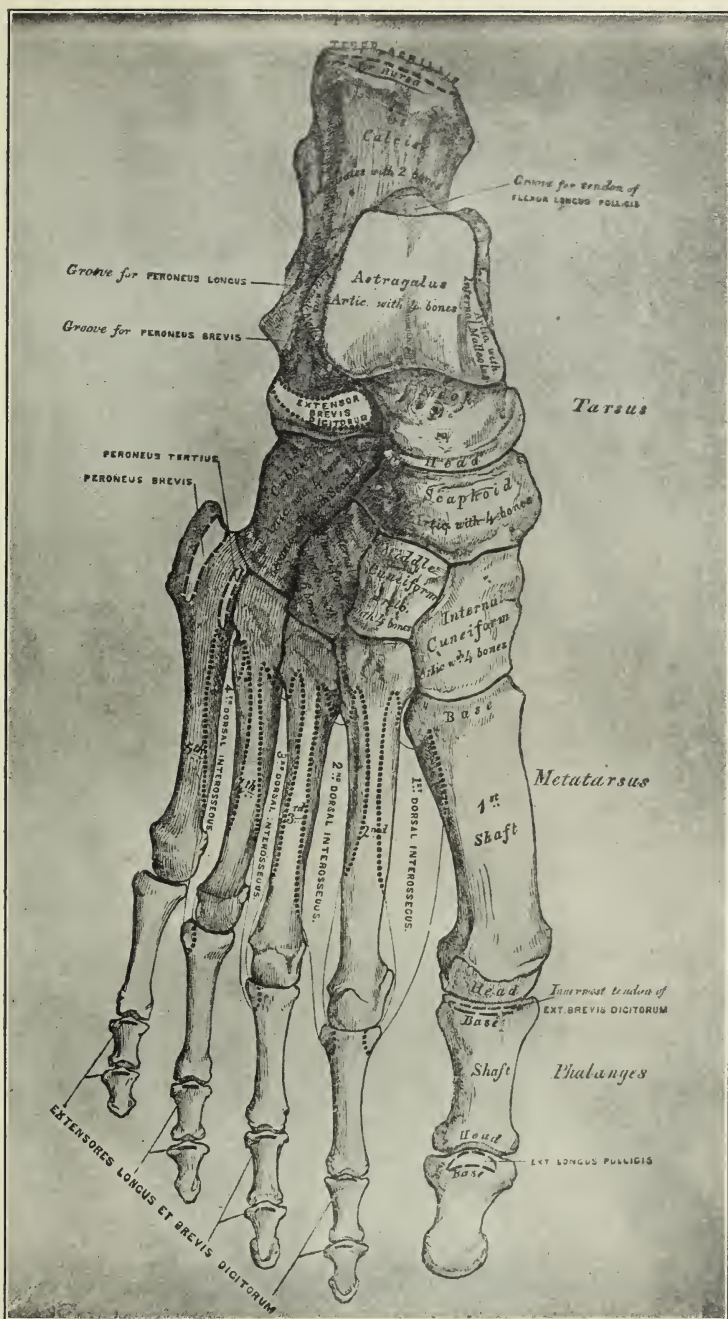


Fig. 10.—Top view of the skeleton of the foot. Note the compactness of the posterior two-fifths and the loose grouping of the anterior three-fifths.

averaging together measurements taken as above of the feet of a sufficient number of soldiers, whose feet are shown by these measurements to resemble each other within definite limits, and thus naturally to separate themselves into distinctive groups within these limits. Membership in these groups is thus determined:

A primary classification of all foot measurements into groups representing sizes and half sizes is made on the basis of the length of the foot. A difference of one "size," commercially, amounts to $5/16$ of an inch, and that of a "half size" to $5/32$ of an inch. For all practical purposes fractions less than $5/32$ of an inch are disregarded.

A last size of $6\frac{1}{2}$ represents a foot length of $10\frac{3}{4}$ (or $10\frac{24}{32}$) inches; a last size of 7 represents a foot length of $10\frac{29}{32}$ inches; one of $7\frac{1}{2}$ a foot length of $11\frac{2}{32}$ inches; and so on.

Thus all measurements of the foot lengths reading $10\frac{22}{32}$, $10\frac{23}{32}$, $10\frac{24}{32}$, $10\frac{25}{32}$ and $10\frac{26}{32}$ inches would bring their respective feet into the primary group "size $6\frac{1}{2}$ "; while foot measurements running from $10\frac{27}{32}$ to $10\frac{31}{32}$ inches, inclusive, would form the group "size 7"; and those of 11 to $11\frac{4}{32}$ inches, inclusive, the group "size 8."

Taking the sizes and half sizes 6 to 12, inclusive, as now furnished in shoes by the Quartermaster's Department, it is clear that the original mass of statistical data is readily resolved into fifteen primary groups.

The secondary classification is based on the various widths of the foot within the length-groups, called "half sizes," already determined. There should be five such width-groups within each length-group. For convenience here, these width-groups may be designated A, B, C, D and E. The medium width for any "half size" is obviously group C. Its numerical value is, of course, found by adding the total number of figures expressing foot-width by the total number of width measurements taken.

The usual allowance for difference in widths of lasts of the same length is $1/12$ of an inch. Having determined in figures the width of last "C," width "B" would be $1/12$ and width "A" $2/12$ of an inch less than "C"; while widths "D" and "E" would be $1/12$ and $2/12$ of an inch, respectively, greater than width "C."

By the above primary and secondary classification, the original mass of individual data is separated into seventy-five

groups, each of which will ultimately represent a shoe last different in either length or breadth from its fellows.

The next step is to average together the same remaining measurements for feet found to fall in the same "half size" as to breadth. Thus, for example, all ball measures of the feet found to be of "size 7, width C," are averaged together to determine the proper bulk of the last over the ball, and the same procedure is also carried out with "size 7, width C," in regard to the ascertained measurements of high and low instep and ankle. From the resulting averages a proper last for a military shoe of "size 7, width C," can readily be modeled, using the figures for the satisfactory heel measurement of the present "size 7, width C," to complete the new last.

The same method would be used to determine the proper dimensions of any desired last, whatever its width and length. Each last should be modeled from its own group average measurements. The present practice of the Quartermaster's Department in having all other lasts built "proportional" to its standard last of number 8 size is unscientific in theory and clearly unsatisfactory in practice.

In conclusion, it may be stated that for every evil of human production there should be a remedy. The writer believes that the suggestions above mentioned should go far to explain and solve the vexed and correlated questions of improper military shoes and disabled military feet.



COLONIAL PROTECTION; A MOBILE ARMY FOR THE FIRST LINE OF ACTION.

BY CAPTAIN COURTLAND NIXON, QUARTERMASTER, U. S. A.



I N a country busy and prosperous, where there are many fields in which development has only started, the national attention is directed toward the mysteries of science or the development of commerce.

There are men just as broad minded and just as deeply interested, in the military profession, but being in the minority they cannot command the commercial majority to stop and consider other than self-evident truths. Commercialism is demanding a protection at home—where it plainly sees the necessity. It is selfish.

Statesmen and business men must now advance a step and realize that capital will only take a firm hold in colonies where it is encouraged by assurance that there is sufficient military protection.

Last Congress increased the artillery coast defense until its strength now forms $30\frac{1}{2}$ per cent. of our army. Later it will be shown that this is an abnormally large proportion, as compared with foreign armies.

Of course we have not now the financial interest in our colonies that we have in the Atlantic or Pacific seacoasts.

The United States paid twenty millions to Spain in assuming the indebtedness of the Philippines to the mother country, and since has loaned three million dollars; but now “the civil government of those islands is maintained by its own revenues and without a dollar from the Treasury of the United States.”*

Any one of several of our American multimillionaires could sustain the loss of twenty-three millions.

In these islands—the least developed of our colonies—the imports have increased over five and one-half millions yearly, from 1899 to 1903. During the same period the gain in exports was greater, being nearly six millions per annum, and amounting to forty millions in 1903.

*Senate Document, No. 304, Second Session, Fifty-eighth Congress.

But if this American republic is ever called upon to go to war in defense of its colonies, surely it will not be said that it is fighting for the money that is invested. That the war would be based on the broader view of patriotism and national honor, as well as the humane protection of its citizens, will be admitted without argument.

Again, a country that in a century and a quarter has grown from the Atlantic to the Pacific should not be so blind as to close its eyes to fields for future growth.

We have these various possessions. Are we providing a sufficient army to protect the inhabitants against all probable invasion, and to insure possession of territory for future invested interests?

An army to be of service in exterraneous countries must be mobile; not only after it is formed, but it must be ready to move at once. General Forrest, the tireless Confederate cavalry leader, stated that the art of strategy consisted in being "thar fustest with de mostest men."

When we fought with Spain we attacked her colonies, *not* the territory of the mother country. Japan did not attempt to disturb the "Russian Bear" in his *den*.

No power would attack the territory of the United States, between the Atlantic and Pacific, until it had taken a distant colony or two.

Our newspapers make the platitudinous statement that "a great standing army is not necessary and this country is not ready for it"; perhaps this is partially true; however, it needs at least a force that shall have been properly trained, proportioned, and a force large enough to be sent as a unit promptly—perhaps only to drive away the black thunder clouds of bush-fighting which appear hovering over a South American republic, or to hold the first line of action until the volunteer army is mustered in, equipped and shipped to the scene of campaign.

The following table shows the proportions of the three principal arms—artillery, cavalry, infantry—in the armies of five of the leading powers chosen at random. (Staff corps, depot battalions, recruit, school and remount depots, etc., are not included in computing the strengths.)

NATION.	ARTILLERY.		CAVALRY.		INFANTRY.	
	Strength	Per Cent.	Strength	Per Cent.	Strength	PerCent.
ENGLISH: European Army, in India only.....	14,666	19.81	5,643	7.62	53,736	72.57
FRENCH: exclusive of Native Troops.....	83,027	15.52	64,288	12.01	387,628	72.47
GERMANY: including Bavaria...	91,036	16.63	69,010	12.59	387,657	70.78
RUSSIA (Kuropatkin's Force, January 1, 1905).....	35,340	8.69	36,792	9.05	334,700	82.26
JAPAN (Oyama's force before Nogai's Army joined).....	24,130	13.31	9,700	5.38	147,160	81.32
Average per cent. of the three arms		14.79		9.33		75.88
UNITED STATES: Strength authorized at present.....	*25,354	38.85	13,785	20.59	27,179	40.56
UNITED STATES: Proportion approved by General Staff Field Regulations.....		10.22		8.84		80.94

For comparison, the average proportion of the three arms for the foreign armies, and of our army, is added.

Let us note the lessons to be deduced from this table:

First. The foreign armies given represent several phases of the scope of duties to be required of military forces.

The French and German Armies are maintained by powers upon whom it is incumbent to protect distant colonies in addition to the coasts and interior defense of the mother country.

The English European Army in India is a colonial army.

The Russian and Japanese Armies were mobile forces for actual warfare; the Russian especially, as it was a long way from its real base of supply.

Note the increase in infantry strength in the fighting armies.

Second. The General Staff of the United States Army, in

*Field and coast artillery, combined, as is also the case of the English, French and German. Field-artillery of United States, about 8.35 per cent.

prescribing the proportionate strengths of infantry, cavalry and artillery composing the field forces, adheres closely to the average per cents above shown.

Third. The field armies (Russian and Japan) are the cheapest to supply and equip, as well as the most mobile, man for man, of any of the armies given in the table.

Fourth. Our army is sadly deficient in infantry strength; as a corollary its mobility, considered as a whole, is below the average.

Take the present regular cavalry (which is numerically the smallest arm of our army) as a base, we would require seventy-two regiments of infantry to use with it, in actual warfare, according to our own regulations. We have thirty regiments of infantry. To be more conservative we would require fifty-seven regiments of infantry to use with our present force of cavalry, if we based the proportion on the average per cent. of the foreign armies given above.

It is apparent that an increase of at least twenty-seven regiments of infantry is inevitable.

First. The National Guard may be considered by our population at large as a source of supply for this deficiency. The volunteer has to close his business, and provide for his family before he reports for duty; then there is the mustering in, equipping and transporting to camps of mobilization; which will consume weeks at best.

Russia had two divisions *en route* to Manchuria, before diplomatic negotiations had been severed with Japan; but this was too late, for Japan, within twenty-four hours after recalling her minister from St. Petersburg, had forty transports loaded with troops headed for Korea.

To plant our flag in the Philippines, against a comparatively weak enemy, took a naval fleet and an army of about 12,700 men; but this small army (largely composed of volunteers) was embarked in four expeditions.

England suffered a long series of reverses in the opening months of the Boer War; among other reasons, because her enemy (really a mounted infantryman) was not encumbered with long wagon trains, and because the Boer forces were composed of men whose life had prepared them for exposure and hardship, together with endurance to move rapidly from one theater of operations to another. The English became hardened later and the tide turned.

It is not just to the American volunteer to take him from his office or workshop and demand physical endurance until he is toughened in camp. He needs instruction on the target range, and a chance to absorb knowledge from contact with the Regular Army. It takes time for him to overcome his initial disadvantages. His intelligence reaches a high standard, and to his new life he brings a freshness and an individuality which makes up, somewhat, for lack of experience; but opportunities for learning his duties in the field have been very limited. He has been required to fire a few rounds, annually, on the target range; but his study of terrain has been almost neglected.

The National Guardsman's services are not to be discredited; in case of war there is plenty of work for him to do with the small standing army maintained in the United States. His services will be all the more appreciated when he arrives to reinforce the first line of a mobile army, because he comes prepared.

General Bonnal says: "Does one not see in all branches of human activity the perfection of tools demanding more skilful workmen?"

The modern small arm, with its long range and flat trajectory, the modern field-artillery and smokeless powder, demand an individual with more thorough preparatory training and initiative, because the combatant enters the field of attack earlier and is longer under the fire of a hidden enemy. The value of the greater power of the modern magazine rifle depends upon the soldier's efficiency.

Second. Why not make a first-line mobile army, with the Regular Army at present available?

Because almost 50 per cent. of the thirty infantry regiments now authorized are serving outside of the limits of continental United States—in Alaska, the Philippines, Hawaii and in Cuba. This proves, by the way, that a mobile force is required in the colonies; for only $3\frac{1}{2}$ per cent. of the combined strength of the coast and field-artillery, and 33 per cent. of the cavalry strength, is stationed outside of the United States at present.

Separating the coast and field-artillery, we find 22 per cent. field-artillery strength in the tropics, and only one coast artillery company out of 157 companies.

To furnish officers for volunteers, and to provide increase for the staff corps in the Spanish-American War, almost $15\frac{1}{2}$ per cent. of the Regular Army officers were taken away from

their commands. This does not include staff-officers who were simply given a higher volunteer rank in their own branch.

There is not enough infantry at present available for a first-line army.

The Japanese First Army, under Baron Kuroki, consisted of about 41,000 men, according to the average of the strengths given by various writers.

Omitting the coast artillery—which would be required for our seaboard defenses—we have, then, less than 27,000 men (of whom one-half are foot soldiers whereas experience teaches that three-quarters of the number should be infantry) within the United States, ready to send at once as a first army; and surely business men and statesmen at home would not permit taking more than half of these before the volunteers were available.

Everyone knows that the infantry is the most economical branch of the military service. It is cheaper to equip and maintain, cheaper to transport, cheaper to supply in the field, and these qualities make it cheaper as an army of occupation than either cavalry or artillery.

To recapitulate:

First. We have colonial possessions to protect.

Second. We need a first-line army to move at once.

Third. This army should be well trained, and mobile; its proportions based upon experience, and not demanding the addition of new organizations to make it serviceable.

Fourth. To make a complete mobile army the United States regular infantry must be increased by at least twenty-seven regiments in time of peace.



TROPICAL INFECTION.

BY COLONEL C. J. CRANE, NINTH INFANTRY.



WE have noted of recent months the efforts to improve the physical condition of the officers of our army by eliminating those not fully fitted for arduous service.

We are well aware of the requirements of good health and good physical condition which we are expected to satisfy, and we can therefore find no valid objection to the recent tests of different kinds applied to us, and we doubt not the ultimate good to be attained thereby.

We know very well the advantages of strength and good health. We know them better now than ever before, since we have seen so many good officers depart from our midst because of the loss of them. Yet, while sympathizing with such of our comrades as have thus of recent years left the active list, and while deploring the inexorable necessity of keeping up the requirements for excellent physical condition in our commissioned ranks, a certain suggestion arises in the minds of many of us and will not leave us.

It is true that while we are on the active list we are under obligations to give the military service our best energies and our best health as long as either lasts, and we know that this is right. It is our duty.

But, is there no corresponding obligation on the part of the employer, the General Government, and the War Department? Is there not the corresponding obligation to give to physically disabled officers and enlisted men, who have become unfit for service through no fault of their own, the benefit of the best medical and surgical talent existing in our country, before eliminating them from the active list?

It is tropical service which is now playing havoc with our people, and valuable officers are being compelled to give up the race and step aside, into the ranks of the retired, all because of having been energetic during tropical service. The military service is thereby continually losing the assistance of able men whom it has required years and years to thus qualify.

Tropical infection is steadily and continually at work, and many are vainly seeking remedy and antidote for the dread complication of troubles which the expression describes, and during those moments when able to collect ourselves and work the necessary faculties, how many of us have said to ourselves: "Why are we compelled to work out our own salvation when we were injured in the line of duty? Why does not the Government give us, in Government institutions, the benefit of expert treatment for tropical infection?"

We have at Fort Bayard, New Mexico, a large hospital service for the victims of tuberculosis, and both commissioned and enlisted sufferers from that disease are promptly sent there for treatment.

At the present time, is not tropical infection creating more casualties in our active ranks than does tuberculosis, and have we any place specially prepared for the treatment of it? Are the unfortunate sufferers from a tropical liver, tropical intestines, tropical stomach, promptly sent for special and expert treatment to any Government institution, or any other institution?

We sometimes read orders directing some one in the military service to go to some special place for observation and treatment. We have, however, no information as to what was the complaint or disease in any case, and no one afflicted with tropical infection has any means of knowing of any Government hospital to which he may apply for treatment. Consequently we know that some go to Europe for treatment at the famous health resorts there, some seek treatment of high-priced experts in our own big cities, and some take refuge in sanitariums located in healthy places in the North and East.

But many have not the means to pay the expenses of either of the methods pursued and they simply go along and get worse. The Government thus continually loses the services of more valuable officers from tropical infection.

Is there no cure, no satisfactory treatment for the disease? Now and then we meet a man who has returned from Carlsbad with renewed health. Perhaps we find one who has met his restoration to good health at a sanitarium, while some of those who have had the benefit of expert treatment in our great cities tell of good results.

And the suggestion will not be downed: "Why does not our Government furnish us of the military and naval services with

the best expert treatment for tropical infection, at one or more Government institutions, specially equipped and prepared for the purpose, and under the charge of medical officers specially equipped by training and experience for such important duty?"

We have locations in abundance for such institutions, or hospitals, and there should be at least three, for instance, at San Francisco, Cal., Hot Springs, Ark., and Governor's Island, N. Y., and the medical officers who are first to have charge of the tropical infection cases should previously be sent to study the methods pursued at Carlsbad and other European resorts, also those of Dr. Fenton B. Turck, of Chicago, Ill., and other eminent and able experts in the treatment of the stomach and intestines.

We should then be informed of such preparations made for the relief of the sufferers from tropical infection, and officers and men known, or suspected of being thus afflicted, should be ordered to one of the Government hospitals specially fitted for their treatment. All this we feel to be our right and due, and we petition that while requiring of us the vigor of good health, the Government may see and recognize the corresponding obligation to take the very best measures to put us in such excellent condition.

And in addition to such measures for our relief, is there no other obligation on the part of the General Government in this same connection?

In addition to taking good care of the health of the willing horse, what does the considerate and economical owner when he discovers that in spite of the best precautions his one willing horse will die of overwork?

The purchase of an additional horse is the natural remedy, and this suggestion as to the manner of relief applies with the same and equal force to the treatment of the army for tropical infection. That we are overworked and are dying from tropical infection in consequence of such overwork will hardly be denied by any one who takes the trouble to look into the statistics steadily accumulating.

And to relieve the condition arising from such overwork and tropical infection, the troops suffering most should be at least doubled in numerical strength, giving the army sixty regiments of infantry instead of thirty as at present, half of which are in the tropics and all of which must spend half their time in the performance of duty in the tropics.

That the physical condition of the army officer should be excellent in order to enable him to properly perform his military duty, we of the army know to be the fact. We also know that the physical condition of only too many has not been what it should be of recent years. But while we do not object to or protest against the recent measures having for their object the elimination of the weaker of us, we are forced to believe that the real remedy lies in the carrying out of the suggestions contained in this article.

The specially preparing of certain hospitals and certain surgeons for the treatment of tropical infection is only a question of expending a few hundred dollars for each place selected and can be arranged by the War Department, but to add thirty regiments of infantry to our army requires the action of Congress.

The President, in his recent message to Congress, has recommended a material increase of our fighting force without specifying exactly what was necessary, but there is now awaiting the action of our national legislature a bill which provides for the increase of thirty regiments of infantry, and a chief of infantry, who will be more and more needed as our numbers increase.

The manner herein advocated of stamping out the tropical infection which is sapping the strength of our officers and enlisted men and supplying us with the necessary vigor is believed to be true economy in blood and treasure, and correct in principle.

Fort Sam Houston, Texas, Jan. 5, 1908.



THE ARMY AND THE ORGANIZED MILITIA.

FROM the proceedings of the General Meeting held at Governors Island, January 16, 1908 (being the Thirtieth Anniversary of the Establishment of the MILITARY SERVICE INSTITUTION OF THE UNITED STATES), the following discussion of the relations which should exist between the Army and the National Guard, or Organized Militia, is published for the information of the readers of THE JOURNAL.

DISCUSSION.

[MAJOR-GEN. ALEXANDER S. WEBB IN THE CHAIR.]

THE CHAIRMAN—It is proper at this General Meeting to refer briefly to the losses to our council, due to the deaths of four of our wisest and safest counselors.

Our President, Gen. Thomas H. Ruger, whose splendid military career was the theme of all interested in the progress and growth of our army, whose devotion to the best interests of the INSTITUTION was characterized by tact and wisdom, died June 3, 1907.

One of our vice-presidents, Gen. John Walker Barriger, a patriotic man of wonderful purity of life, able in performance of all duties, and of noble nature, died December 31, 1906.

Col. John E. Greer, of the Ordnance Department, always ready to devote his whole strength to his duties, devoted to his profession, a wise counselor, beloved by us all, died at this arsenal September 19, 1907.

Gen. Henry Stuart Turvill, deputy surgeon general, whose military experience covered a wide range in war and peace, who inspired his fellow-members of the council by his devotion to the work and welfare of the INSTITUTION, died May 24, 1907.

We are honored at this meeting in having with us the Assistant Secretary of War, who has expressed his willingness to address you upon the subject of the relations of the National Guard, or State Militia, to the General Government. It is proper to give, in his presence and in the hearing of many associate members and officers of the National Guard, a short retrospect which may serve to call the attention of those who may be with us for the first time to our origin, our progress and our present policy.

Early in the spring of 1878 a few officers of the army stationed in New York City proposed the formation of a society for the advancement of military science and for other purposes. * * * At a preliminary meeting held in June, 1878, at which every branch of the service, active and retired, was represented, the matter was referred to a committee empowered to prepare a program. On Saturday, Septem-

ber 28, 1878, the committee submitted its report to a large and harmonious meeting and it was unanimously adopted.*

In the code of by-laws it is stated that: "The 'design' contemplates professional unity and improvement by correspondence, discussion and the reading and publication of papers; the ultimate establishment of a Military Library and Museum; and, generally, the promotion of the military interests of the United States. Under the head 'Constitution'—all officers of the army and professors at the Military Academy shall be entitled to membership, without ballot, upon payment of the entrance fee."

Maj.-Gen. John M. Schofield, Superintendent of the Military Academy, and commanding the Department of West Point, was invited to read the first paper before the INSTITUTION, at the general meeting on the second Saturday in January, 1879.

At that date 500 officers of the army had joined the INSTITUTION.

In this inaugural address General Schofield wrote: "You are intrusted with the preservation of the vital military germ from which your country expects great armies to spring in time of public danger, and you are expected to improve and perfect the methods by which such armies are to be rapidly brought into a state of mature strength and effective action. I can hardly find words to express my sense of the great responsibility which is thus devolved upon you."

From 1878 to 1884 the membership was confined to the officers of the United States Army, but it was soon seen that, from the nature of the essays and papers read and printed, the work of the INSTITUTION had become of vital interest to all military men. The presence of many members of the National Guard called the attention of the council to the necessity of admitting as associate members all officers of that branch of our national defense.

The by-laws having been amended to admit "ex-officers of the Regular Army, officers of the United States Navy and Marine Corps, and all persons of honorable record and good standing," the INSTITUTION very shortly welcomed as associate members about 850 officers of the National Guard. At this point the INSTITUTION began to work in the right direction.

In March, 1884, at the request of General Fry and General Hancock, the president, an essay had been read before the general meeting by the present presiding officer on the subject, "The Military Service Institution; What it is doing; What it may do; Its relations to the National Guard."

The main point was to show that "We should associate with military men of known scientific ability; men whose whole life is given to the study of the science of war—the officers of the National Guard, who must in the end exert the most influence on legislation for the army.

*Read before the INSTITUTION by Brevet Maj.-Gen. James B. Fry, April 12, 1879.

"We may, through a proper journal, so interest the city, the State, and the National Government as to secure aid from all three."

The essay was discussed by many present. In the proceedings we find:

GEN. WHIPPLE (Asst. Adjt.-Gen.) :—I move that the thanks of this INSTITUTION be tendered to the general for his very interesting and instructive paper.

GEN. MOLINEUX (New York) :—I second that motion; as a citizen who is desirous of seeing that the usefulness of the Regular Army is extended, and the national defense itself strengthened by the influence of the National Guard, and of the people at large. I endorse what the general has stated in regard to this matter. "Public Opinion is irresistible," he says. We know that; and as a citizen I state that if this INSTITUTION will enlarge its sphere so as to extend its benefits to the National Guard, and to the public through it, you will be doing something of great use. It is a matter, to my mind, of national importance, and I hope that steps will be taken by you to allow the National Guard to become associated with you in this INSTITUTION. It is a thing of vital interest to the National Guard.

COL. WARD (23d Regt., N. G. S. N. Y.) :—*Mr. President*: As a member of the National Guard, I esteem it a very great pleasure to be here. I am very glad indeed to see officers of the Regular Service manifest so much interest in the success of the National Guard. You can hardly realize how great the benefit is to us of having your moral support.

GEN. COCHRANE (New York) :—It is with a little diffidence that I rise to make a remark which will only be a commentary on what I have heard. I do not arise as a representative either of the National Guard or of the Regular Army, but I hope to represent the people; I do hope to represent the common thought of the people.

I approve, Sir, of the object of your meeting. I approve of the results at which you have arrived. The details are little or nothing. The question is this simply: Shall they who make arms their study be proficient in their exercise? Well, there is but one answer—they should be. Who make arms their study? The National Guard. And who are the National Guard? They are the people. Should the people be instructed in the art of military defense—mark it, Sir, *defense*—not aggression? All people should be proficient in that art, or they will be at the mercy of their enemies. It does not admit of argument, therefore—the necessity of this proficiency. These details are admirable, and they will accomplish their purpose through the instrumentality of the National Guard, instructed by the Regular Army. The people will maintain the position at which they arrived at the end of the war; and at the tap of the drum or blast of the trumpet, not thousands, Sir, but millions of armed men—not armed only, but proficient and expert in the exercise of arms and in the Art of War—will rise spontaneously from the land. [Applause.]

And thus spoke all of the colonels of the regiments of the National Guard who were present.

In 1885 General Sherman wrote:

Inasmuch as the militia is a physical force of which the executive of the nation must mainly depend for the execution of his high office, which commands that he shall preserve, protect and defend the Constitution of the United States, and take care that the laws be faithfully executed, it becomes our duty as soldiers and citizens to aid, as far as we may, to mold that militia into a form in which it may be available when called into active service. Also, I believe that there is no more important subject to-day for the members of the INSTITUTION than to assist in perfecting the Militia and bringing it into more cordial relations with the Regular Army and the people of the United States.

With this experience and with such encouragement from the head of the army, the council felt that it was required of them to take steps to put the library, museum and lectures within reach of the members of the National Guard, and a committee was appointed to procure from the State Legislature some appropriation to be used in procuring suitable rooms in the City of New York.

The bill appropriating \$10,000 annually passed the Assembly and Senate, but was vetoed by the governor, who severely condemned the measure. It was found, upon investigation, that the opposition came from some prominent officers of the National Guard.

We had made a serious error. We had not at that time made the officers of the National Guard associate members. We had not recognized the fact that the application for State support in a good measure should have come from the close representatives of the people. The money asked for should have been placed under the control of the National Guard. They would have provided the home for the museum and library, and they would have welcomed a measure which could not be construed into an attempt on the part of the Regular Army officers to give unsolicited instruction to the militia.

But the association with the INSTITUTION of all persons interested in our work—the election of representatives of the National Guard to membership of our council, the publication of articles or essays referring to military affairs exclusively under the control of the State, and the continued efforts of the council to make the JOURNAL of lively interest to both arms of the land forces have changed all of this, and to-day our arms and our methods are understood and appreciated, and it only remains for us to extend our influence.

The main question before this general meeting is how to bring before a greater number of officers of the army and officers of the National Guard the results of the experience, the study, the service of our ablest thinkers and writers of both branches of the service.

The appeal of Major Lydecker to the commanding officers of the regiments of the National Guard, in which he writes,

The MILITARY SERVICE INSTITUTION of the United States, whose headquarters are at Governors Island, earnestly desires to do every-

thing in its power to act as an educating influence upon the officers of the Organized Militia, in the same way that its work has been carried on for the regular service. The scope of its work is broad, and comprehends the efficiency and advancement of the army as an entirety inclusive of all arms and corps. Its *JOURNAL*, published bi-monthly, is a periodical which contains most advanced thought and information upon military subjects of interest to the several branches of the service, in original papers, reprints and translations from the military periodicals of Europe.

I am authorized, as a member of a committee appointed by the Council, to express the wish that the advantages of the INSTITUTION be brought to the attention of all of the officers of your command.

The effort of the War Department to place before the officers of the militia every opportunity to bring out the best results attainable, in order that the militia may approximate as nearly as possible to the efficiency of the regular organizations, has resulted in the demonstration of great willingness on the part of the individual officers of the army to contribute to that result.

Our officers must keep abreast of their work, and aim to acquire by systematic study and professional reading a comprehension of the responsibilities which have developed upon them in the acceptance of their commissions.

is the culmination of the efforts to extend our influence—Major Lydecker being one of the representatives of the National Guard in the Council of this INSTITUTION.

I now take pleasure in introducing to you the Assistant Secretary of War, Gen. Robert Shaw Oliver.

GENERAL OLIVER—No one doubts the great value that this INSTITUTION has been to the service at large. Its publications are read with the greatest interest by the National Guard as well as the army, many of the former being contributors as well. By means of the magazine the interest in military affairs has been greatly stimulated among the citizen soldiery.

General Webb has asked me to bring before you the question of the affiliation of the National Guard with the Regular Army, and in this connection I would like to draw your attention to a few facts.

Before the Spanish War the only available forces were the Regular Army and the volunteers. Upon the breaking out of the war the President called for volunteers from each State, asking that the National Guard be accepted as the first. The result was very unfortunate, as it practically disintegrated the whole guard. In the case of many organizations only one-third or one-half volunteered to go, leaving the balance of the commands to be filled up with raw recruits who were neither armed nor uniformed. An impression was thus given that the National Guard was not properly equipped and inefficient, when in fact the National Guard itself as a body did not go into the service. After the war, in order to correct this serious defect, a bill was passed in 1903, familiarly known as the "Dick Bill." Under this the National Guard took on a new aspect and became subject to the orders of the

President, under war conditions, in the same manner as the Regular Army, and the volunteer question no longer enters into the use of the National Guard in time of war; it is subject to orders, and every man who enlists in the National Guard to-day, and every officer who takes his oath when commissioned, has already volunteered for the war. This gives us a body of from 100,000 to 150,000 men subject to military duty under certain conditions, and the great question has been how to make this National Guard most useful. This has been the aim of the Government ever since 1903. It is a well-known fact to you all that the coast artillery has only about one-third of the necessary number of men to man the defenses. The Department has appealed to the National Guard to furnish at least enough to make one relief at the guns. Last year this plan was put in practice to a certain extent. The idea was that every coast-artillery company in the Regular Army should have a twin company in the National Guard, stationed in the city nearest to the defenses which they were supposed to occupy. The experiment last summer was a great success, and companies have been formed and are forming to take up this work. It is desired to obtain men for this purpose who are the least likely to be able, in case of war, to leave their homes for any distant point, believing that they would be willing to serve their country at a place near by and where they would not be obliged to sacrifice the many civil duties that would be demanded of them. In this manner we hope in time to obtain sufficient National Guardsmen as volunteers to supplement the large deficit in the present coast artillery, and propose to bring these troops into camps of instruction with the regular coast artillery every summer, each company to be specially assigned to some battery and made the twin company of the Regular Army troops stationed at that point. Of course all this is in its infancy, but it is one of the steps we are taking to bring the Regular Army and the National Guard together and to educate the latter as best we can.

In addition to this, under the "Dick Bill" the National Guard is obliged to go into camp every summer unless excused by the governor and it is the policy of the Department to aid in these State camps every other year by sending as many officers as practicable and a small force to take part with the National Guard in their local work. On the alternate years the army itself is concentrated in six or eight camps in different parts of the United States selected geographically. To these camps of instruction the National Guard is invited to come, sending from one to three regiments for a week or ten days for the purpose of instruction with comparatively large bodies from the Regular Army. Also, under certain conditions, officers of the National Guard are entitled to attend post-graduate schools of various kinds which have been created for the education of the army. This general scheme of education for the National Guard and the army combinedly will naturally bring about a very close affiliation between them. While it is perfectly

recognized that the National Guard cannot be ordered to do any of these things in time of peace, yet we have found it only too glad and too willing to volunteer to do the work which has been outlined, and it is the desire of the Department, with regard to these large camps of the mobile forces, to go still further, and to concentrate in them every second year all the National Guard of the adjoining States, thereby looking toward the creation of a number of separate army corps. I will give you an example:

One concentration camp for the army is at Chickamauga; the contiguous States are North Carolina, South Carolina, Tennessee, Georgia, Florida, Alabama and Mississippi. In these States, including the Regular Army as well, there are twenty-five regiments of infantry, twenty-six troops of cavalry and twelve batteries of field-artillery, with various organizations of hospital corps, signal corps, engineer corps, and so on. This body of troops when assembled at Chickamauga will become the nucleus of an army corps, to be gradually perfected. The commanding general of the Department of the Gulf, which practically coincides with the territory described, will be designated as the general commanding that corps; and he would be charged with the care, education and general development of the National Guard in those States. In time this corps could be perfected so that six or eight of them could be mobilized inside of a couple of days, the idea being that this organization should be permanent and the National Guard should belong at all times to its own corps and subject to the general direction of the corps commander in time of peace and to his orders in time of war.

It is also very important that there should be a large surplus of officers in the army for the purpose of instruction, and that every State should have an active officer detailed with it to advise and help in the building up and in the education of the Guard, who shall report direct to the department or corps commander.

One to three regiments from each State took part in the encampments held with great success in 1906, and we are to repeat them this year. This, however, is only a beginning, and we trust in time to develop the plan of army corps outlined above.

Then comes the third force known as the "Volunteers" to supplement the Regular Army and the National Guard; but these should be United States Volunteers, and officered by officers from the army and from the National Guard, and also by enlisted men who can pass the necessary examination. These volunteers should be concentrated at the different corps camps and be utilized to complete the corps organizations.

This is a very rough sketch of the proposed scheme. You will note that it brings the National Guard and the Regular Army together very frequently, and the interest of the one is the interest of the other. The army is the highly educated brother who will do all he can to assist the National Guard brother in perfecting himself to such an extent as is

practicable in those duties which will devolve on the National Guardsman in case of war. I am glad to say that to-day the army is only too willing to give its aid, and the National Guard only too glad to volunteer its services and to accept all possible assistance. All this, however, depends purely upon voluntary action, for the National Guard is a State force, organized primarily for State purposes and not under the control of the United States Government except in time of war. But the spirit of patriotism shown by the Guard is quite remarkable. As we are all aware, they are all busy men engaged in the pursuits of business life, and the part of a soldier is merely their pastime, but the time has come when they realize that the National Guard is a powerful arm of the Government, and their one desire is to make themselves as perfect and as useful as their conditions will permit.

GENERAL CURTIS—General Webb's kindly reference to my services in the field and as a member of the Committee on Military Affairs in the House of Representatives induces me to comment on the subjects you have had under discussion. During my service in the army, between April 15, 1861, to January 15, 1866, I had a large experience in commanding many different regiments and brigades, and became better acquainted with the needs of the minor organizations of the army than many who commanded the larger ones, like corps and armies. I was brought into direct connection with new regiments, and recruits for older regiments, and learned much of the system pursued in bringing new men to a state of efficiency. The Government at first refused to permit regular officers to be assigned to the command of volunteers, and the error of that system was shown by the failure of inexperienced officers to bring their commands to that state of drill and discipline essential for active service. If regular officers and intelligent non-commissioned officers had been assigned to volunteer regiments at the time of their organization each regiment so aided would have been quickly prepared for active field work and kept in better health and spirit. It took the Government a long time to learn this lesson which it only but partially applied. I received about four hundred recruits for one of my regiments, and put arms in their hands the day before my brigade was put into action. I directed that they should be so distributed in the various companies that each recruit should have a veteran on either side of him, and the result was all moved forward, under a severe fire from the enemy, without a break. The steadiness of the old men gave the recruits confidence. The plan of organizing the militia, as explained by the Assistant Secretary of War, will make the combined forces efficient from the beginning.

On the reorganization in 1867 I was offered a colonelcy in the army, which I declined, but from no want of interest in military affairs, nor have I ever lost any of the spirit and attachment which in my nearly five years of service enabled me to gain high rank and two obituary

notices, the last of which I have survived for more than forty-three years.

During my Congressional service I took a deep interest in army matters, and am the author of some useful legislation. I will now only mention the act by which the term of enlistment was reduced to three years, requiring recruits to be under thirty years of age, native or naturalized citizens of the United States, of good character, and able to read, write and speak the English language. No man from civil life, over thirty years of age, is worth enlisting for active campaigning.

Congress has been slow in recognizing the needs of the army; it has failed to provide suitable provisions for sanitation and the best medical care. It has not kept pace with the industries and the professions in the compensation given to men or officers. Patriotic devotion to the country's defense and welfare should not be expected at a lower compensation than is paid to unskilled labor, or the rewards obtained in less exacting professions.

You are engaged in solving a difficult problem: the bringing of the resources of the country into an efficient organization to maintain the nation's honor, to guard its welfare, and to extend its days of peace. Your efforts to establish a force composed of the militia and the Regular Army command my judgment, as the members of your noble profession have my highest consideration and warm esteem.

COLONEL APPLETON (Seventh Regiment, N. G. N. Y.), called on by the President, said, in substance, that his energies had been devoted to maintaining a regiment efficient in duty and composed of men of character and responsibility; that it was a duty to educate the citizens to uphold the Regular Army and the National Guard, and to enhance the value of each to the National Government, and that duty had been a prominent feature of his efforts.

He asked how in the new plan of militia organization the recruits were to be obtained to serve regardless of personal responsibilities, if they were understood to be in service for war for the term of an enlistment. He recognized how much the army deserved to be helped out, and was in the service heartily for that purpose.

MAJOR LYDECKER.—The President puts the question to me, how we like being enlisted for the war instead of being called out for nine months.

I had no expectation whatever of being able to be here, having been in attendance at the convention of the National Guard Association of the United States in Boston, during the last three days, but a most cordial invitation having been given to the members of the Association, and hoping and expecting to meet a number of the delegations who desired to come, I made a special effort, and I regret that the Iowa delegation is not here, and a number of others. Probably they felt that

they had devoted much time to military matters, and were entitled to see New York and its many charms. The Association, I should say, passed a resolution of thanks for the invitation to attend this meeting to-day.

I would like to say, as a member of the National Guard, that I never saw a more representative body of men than were in the famous Faneuil Hall in Boston. It is true that being a major, and not being able to walk two steps without running into a brigadier-general, it was embarrassing. I never saw so many brigadier-generals in my life, but the event was a remarkable exhibition of patriotic zeal to help the general Government in its effort to get 100,000 men for use as occasion may require.

The fathers of the republic were so alive to the subject of the militia that Washington and Jefferson spent days in thinking how they were going to put the militia into some kind of useful shape. I have read, and I believe it to be true, that prior to 1861 the debates in Congress on the militia filled more space and took more time than any other subject except finance. The messages to Congress, the resolutions, debates, committee reports, and other documents have been voluminous. Consequently, this present development of the subject is most interesting and the patriotism that lies at the bottom of it is most gratifying. As General Oliver has stated, there was a very earnest response in Boston, which looked for the opportunity of the officers there present to serve their country.

The question which occurs to us as requiring careful handling is getting recruits. Those of us who have served as recruiting officers in the past know the importance of getting good men if we regard the militia as a training school for officers; and our experience in the Seventh Regiment is that the country has benefited by the hundreds who have been commissioned from its ranks. I have been a recruiting officer for many years, and have recruited my company up to the maximum of the law, taught them everything I knew; they were patriotic and good, but we had to be careful, and whatever our contract was they all knew and would live up to absolutely.

We now appreciate the plan that the National Guard shall be deemed a part of the first line, not as heretofore, to take the field on the first call and hold the ground for possibly nine months, but to take the field for the war. This seems to be very nearly a plan for a national reserve. We do not see how 100,000 men, calling them by one name, will be different from 100,000 men calling them by another name if their duty is the same. To me it looks as though the country must pay for a national reserve in order to get it.

There are compensations which are not to be forgotten. We are to take the field with the same rights as regular officers, which is to the effect that a senior at an encampment would take command. If I can be regarded as being as good a major as a West Point major, I am pleased.

I have always been trained in my regiment, that I could not be; but the officers will study hard and will try to merit confidence. An ordinary private can be made in the National Guard equal to the private in the regular service. Then, too, as compensation, the unlimited service will not cut us off from serving until we can win promotion, as a nine months' service would do, and if hereafter my chance comes to win my star by such a means, then I will never again be embarrassed to meet the generals from thirty-five States in Boston at some later convention.

I am sure that there never was a time when the officers of the Regular Army had it put up to them, as it has been put up to you, how to take us into your arms as brothers, how to treat us as ready for all the duties required for war, and at the same time to leave us engaged in our several avocations and bread-winning occupations.

The army has more work to do than it can do, and we all sympathize with the situation and promise you our best help.

GENERAL GRANT.—Before announcing the count of the votes for the election of President for the coming year, I wish to say for those among you whose memory does not go back to the days of the Civil War, that we have been greatly honored in having with us the speakers who have preceded me, one of whom was Gen. N. M. Curtis, a hero of Fort Fisher. * * *

General Curtis led the assaulting column and penetrated into Fort Fisher. He was severely wounded, and for distinguished personal gallantry displayed in "personally leading each assault on the traverses, being four times wounded," he secured, upon the recommendation of Generals Terry and Ames, the "Congress" medal of honor, issued by the War Department, Nov. 28, 1891.

* * * * *

Some of the gentlemen present have spoken of the difficulties that are in the way of closer relationship between the Regular Army and the militia. I do not believe it is possible to make any advancement in matters not discussed, and I doubt if it would be possible to make any advancement whatever on any line, with reference to a change in the army, without meeting opposition. I have been connected with the militia and was a National Guard colonel at the outbreak of the Spanish-American War, taking the Fourteenth New York to the camp at Chickamauga. I have seen propositions, seemingly just to some and unjust to others, and by discussion of such propositions an improved condition arose, so that all were satisfied. Of course there are always a few who will stand out against any proposition, unless it caters to their own benefit. This may apply to the Regular Army as well as to the National Guard; but, sadly enough, there are always a few who only look to their personal interests and betterment, but the great majority are in favor of any measure which will improve the service, without reference to how it affects their personal interests. When a

real improvement is proposed, I have no fear whatever but that an open discussion, like the one here this afternoon, will be thoroughly digested by the members of the National Guard, and when the majority of them are convinced of its good, they will favor it.

Now, gentlemen, I come to the announcement of the vote for the President of the MILITARY SERVICE INSTITUTION, and I am glad to say that the votes of the members of the INSTITUTION are very much in the order of my affection for the persons voted for. I do not mean by this that I have less affection for the one who received the least votes, but that my admiration is very great for the one who has the most votes. General Webb has received 547 votes, and is elected President for the coming year of the MILITARY SERVICE INSTITUTION.

General Alexander Webb was one of my father's old companions, and my esteem and affection for him is very great. * * * Gettysburg may be described as having been the high tide of the Rebellion, and Pickett's charge was the crest of the wave, and Webb's command was the rock on which it broke.

I announce to the members of the MILITARY SERVICE INSTITUTION that General Webb is elected President for the ensuing year, and I congratulate the gentlemen of the INSTITUTION in securing this veteran as our presiding officer, and I beg of General Webb to honor us in accepting the position.

A SECOND LINE OF DEFENSE.

BY COLONEL ROBERT LEONARD (late) TWELFTH NEW YORK VOLUNTEERS.*

There is a board at present sitting in New York to consider the National Guard of the State, and I am told that the officers who have so far appeared to give their views take the National Guard organization throughout the Union quite seriously as a "second line of defense."

I joined Company B, Seventh Regiment, New York State Militia, May 7, 1860, and with the exception of service in the volunteers during the Civil War was almost continuously in the militia for nearly forty years. Consequently, I have had abundant opportunity to observe the National Guard and its working, and entertain opinions that I am sure are not shared by many. To me, however, they appear to be so reasonable and evident that I am tempted to offer them to the JOURNAL, hoping that a discussion may be begun which will improve the Guard, and possibly a practicable plan for a "second line of defense" may be evolved.

One has only to review the history of the militia to form an opinion of its present worth as a line of defense for the nation.

*These remarks, while not made at the General Meeting, January 16th, are here published as bearing upon the general subject under discussion. [EDITOR.]

The conduct of the militia during the Revolutionary War and the War of 1812 was simply disgraceful.

The militia did not appear in the Mexican War.

In 1861 it was very useful in occupying Washington after the fall of Fort Sumter, until the Government raised 75,000 volunteers for three months to suppress the rebellion.

One regiment left the battle-field of Bull Run after the battle had begun and returned home, because its three months' enlistment had expired; the entreaties of a few of the officers to stay one more day and see a fight were unavailing.

In 1862 the New York Militia—I don't remember seeing a militia regiment in the field from any other State, during the Civil War, excepting the Sixth and Eighth Massachusetts—occupied Baltimore and other places near Washington, relieving the volunteers who were sent to other places near the front.

In 1863 it is said that some of the militia regiments were near enough to the Battle of Gettysburg to hear the sound of distant cannon; one regiment was captured at Harpers Ferry; no lives lost; the Confederates, on learning its military status, took its arms and accouterments and bid it go its way, no parole required.

In 1898 nearly all of the militia regiments in the country responded to the call for troops when war was declared with Spain.

One regiment from Massachusetts had two battalions—about 600 men—which, while not participating in any engagement, had over 900 applicants for pensions on the muster out. One man in a Western militia regiment narrowly escaped personal injury at the hands of his fellows for being the only member of the regiment who did not apply for a pension.

The National Guard is not to be considered for a moment as a "second line of defense." We must have something of a very different composition for that purpose.

The National Guard is intended to support the authorities (should the police force prove to be inadequate) in suppressing disorders.

We are frequently threatened with labor troubles, for that reason enlistments in the National Guard should be restricted to those having no affiliations with labor organizations; it should be composed of men who are upholders of law and order under all circumstances; they should be respectable men engaged in business, who have a dread of disorder and who are willing to give up a certain amount of their time to fit themselves for maintaining order by learning military methods.

It is not requisite that they should be armed with the latest thing in long-range rifles, nor with three-inch rifled guns. Light artillery is not suited for National Guard purposes.

We are liable to forget the lessons of a few years back; in 1877 we had a formidable railroad strike in Pennsylvania, and later the Home-

stead strike. On both of these occasions many of the militia fraternized with the rioters, and even gave them their rifles and cartridges.

There was a riot in Chicago which the president was compelled to suppress with Regular troops.

If a second line of defense should be seriously contemplated, the Government could not do better than follow the Swiss system.

Capt. T. Bentley Mott, sometime military attaché in Paris, observed the workings of the Swiss National Guard very carefully, and wrote an interesting and instructive article, which was published in the *JOURNAL*.

Although the Swiss system is admirable, it can probably never be adopted by us. It would clash with State rights for one thing—a political principle, now, happily, somewhat on the wane—and it is not in harmony with our commercialism for another.

There are some minor matters in our present National Guard system that could be much improved.

Firstly—There should be a first-rate, thorough inspector-general with a competent staff. There can be no discipline nor instruction, except in unusual organizations, without thorough inspection.

Secondly—The life of a commission in one grade should not exceed five years. The officer might be reappointed or re-elected without losing his seniority—appointment is preferable—at the expiration of his five years continuous service. Unsuitable men would then not encumber the active list. Many commands fall into a state of dry rot, because of the apathy of some of the officers.

This condition could hardly obtain if the life of the commissions were limited and under control.

To conclude, I consider the National Guard to be fencibles, and reiterate that the Guard should be composed of men who cannot drop their business affairs suddenly and go off "soldiering" for an indefinite period.

A National Guard composed of the right sort of people could furnish officers in time of war who at least would know the rudiments of an officer's duty; the rest is soon acquired. Outside of State duty this is its greatest possible value to the nation in any line of defense.

Mt. Kisco, Nov. 11, 1907.





Napoleon.*

THE last two volumes of Colonel Dodge's "Napoleon" cover the period from the beginning of the Peninsular War to Waterloo and are a distinct improvement over the first two volumes. The author epitomizes the equipment of a great captain as consisting of "*intellect, character and opportunity, each to an exceptional degree and all working together*" (III, p. 474), and he asserts, with most excellent reason, that at Ulm, Austerlitz and Jena, Napoleon's "intellectual force and vigor of character and clearness of vision may be said to have been at their highest" (III, p. 653). The standard by which the great Corsican must be judged is contained in the order directing Soult to pursue the Allied army after Austerlitz, in which Marshal Berthier wrote on behalf of the Emperor that,

His opinion, Marshal, is that in war nothing has been done so long as something yet remains to be done; no victory is complete so long as one can do more. (IV, p. 594.)

After 1805 even Napoleon himself acknowledged that "One has only a certain time for war; I will be good for it six years more, after that even I must cry halt" (III, p. 329), but, as Colonel Dodge demonstrates, although Napoleon's operations in Spain in 1808 were "successful apparently at all points" (III, p. 125), his "Five Days' Campaign," ending with Eckmühl, "his most brilliant and most able maneuvers" (III, p. 216), and Wagram a splendid campaign (III, p. 380), yet 1809, two years prior to the time set by the Emperor himself, began to witness the growing unwillingness to put forth his greatest efforts (III, p. 259), a distinct weakening of "his old sense of perspective, of the relative value of things on a grand scale" (IV, p. 411), a failure to act on purely military grounds, increasing impatience of things which did not work his way" (III, p. 380), and a constant augmenting of his ambition for political domination and aggrandizement which, only too often, proved greatly detrimental to his every other interest, military wisdom being not infrequently the worst sufferer in this respect. Frederick the Great once declared that "he who seeks to hold everything

**Napoleon: A History of the Art of War*, from the beginning of the French Revolution to the end of the eighteenth century, with a detailed account of the wars of the French Revolution. In four volumes. Volumes III and IV. By Theodore Ayrault Dodge, United States Army. (Boston and New York: Houghton, Mifflin and Company, 1907. Pp. iii, 747; iv, 808.)

will end by losing everything" (IV, p. 281), and Napoleon's conduct regarding the political and military situation in Spain illustrates, quite as vividly as his course in Russia, the truth of this proverb. Not only did the French Emperor underrate Wellington (III, p. 424), but he erred sadly in dictating operations from the other end of Europe, and Colonel Dodge pithily observes that,

"it is hard to conceive how the great soldier could have been so blind as not to consolidate his forces in Spain and thus oblige his lieutenants to work together, on the constant theory that, when you have beaten the main force of the enemy, other things will take care of themselves. This had through life been his strongest principle, and yet in Spain "he saw too many things at once," and "striving to keep everything, he thereby lost everything." (IV, p. 474.)

In the Campaign of Russia the author declares that,

"had he used his opportunities in 1812 with the judgment and energy of 1805, the armies of Barclay and Bagration would have been destroyed in July, and a glorious peace have ended the operations before the Grand Army reached Smolensk," and that "it is not so much a fact that Napoleon undertook too gigantic a task for his power at its best, as it is that he did not show in its doing his ancient power of body and character." (III, p. 428.)

The Campaign of Germany likewise "does not exhibit the great captain to advantage" (IV, p. 198), not only because his political blunders made the military situation well-nigh hopeless, but in so much as he was no longer

"himself the same man. It was not only his physique which years of hard work and self-indulgence had sapped, his force of character had equally suffered. * * * Along with his capacity for bodily exertion, his moral courage had shrunk, and * * * instead of pushing home relentlessly, he sought the line of least resistance." (IV, pp. 84-85.) "He was no longer conducting war as he had taught his enemies to do it." (IV, p. 229.) "He was continually conceiving brilliant maneuvers and never putting any of them to use. Instead of keeping the allies at a distance, he unconcernedly sat down in worthless Dresden and waited for them to surround him. And in going to Leipsic to fight a battle, he deliberately committed strategic suicide." (IV, p. 240.)

The Campaign of France showed Napoleon the general scarcely less vigorous and able than the victor of 1796, 1797, Ulm and Austerlitz, despite that his

"habit of deceiving himself had grown to fatal proportions, and his judgment had deteriorated every year. * * * His plans were founded on estimates and assumptions the like of which scarce one of the generals he had beaten in the past was capable of equaling in absurdity. * * * And yet, when it came to action Napoleon was never more like himself than in this memorable campaign. It is all like a strange case of mental aberration." (IV, p. 325.)

The Campaign of 1815

"was planned with as exquisite skill as any of Napoleon's masterpieces; neither Ulm nor Jena was better. But its conduct, like that of the three previous campaigns, fell short of Napoleonic perfection, and, better than any other, it illustrates how, from the days of Wagram, the great captain had fallen from his high estate." (IV, p. 520.)

The failure to make sure that Quatre Bras and Ligny were seized on June 15th, and his fatal procrastination on the 16th and 17th would never have characterized the indefatigable general of 1796 "who called on his lieutenants for two days' work in one—and got it," or the un-

daunted captain of 1809, "when his task was not to follow up a good strategical creation, but to turn a disastrous one into success" (IV, pp. 567 and 566). Fortune lay within his reach, but he hesitated and permitted her to elude him; yet it was he who emphatically charges us to "profit by every occasion, for Fortune is a woman; if you miss her to-day, do not expect to find her again to-morrow." As for the ultimate result, the impartial reader cannot fail to agree with Colonel Dodge that "most of the faults committed at Waterloo—and they were grave—were Ney's faults, due to Napoleon's want of supervision" (IV, p. 659), and that "the campaign of Waterloo was lost by Napoleon's laxness" (IV, p. 612).

Colonel Dodge's description of the various campaigns is excellent, particularly that of Eckmühl—which, with the exception of extensive accounts that quote the orders and reports in detail, is among the best we know—and of 1814, while all the essential points which have made Waterloo the subject of more controversy than any other campaign in history are embodied in his narrative. The maps not infrequently confine themselves to the baldest details only, and it is unfortunate that more care was not exercised to make the spelling of the names of places coincide with that of the text. There is a wealth of detail concerning every branch of the Napoleonic armies which cannot be found in our language, the varying efficiency of Napoleon's systems of supply is noticed, and the inadequate organization of the so-called General Staff is commented upon frequently. Repeated allusion is made to the defects in Napoleon's training of his Marshals which, although it produced wonderful lieutenants, rendered them unfit to cope with such a self-reliant, cautious opponent as Wellington. Emphasis is also properly laid on Napoleon's neglect to employ Davout and Soult in their proper capacities in 1813, 1814 and 1815, as well as to the great soldier's own mistake in failing to pursue after Ratisbon and Wagram in 1809, and after Vitebsk in 1812, employing the Imperial Guard too late at the Borodino, failure to throw the necessary bridges at Dresna in 1812 and Leipsic in 1813, his inexplicable indecision at Maloyaroslavetz, his blunder in fighting at Leipsic with his back to a river, etc. Stress is laid on the inestimable value of vigorous action in war, particularly after a victory, and the rôle played by so comparatively mediocre a general as Blücher by virtue of his indomitable energy is contrasted with the greater English general, who, though the equal of Marlborough in battle tactics (IV, p. 669), was always delinquent in that he failed to render his battles decisive (IV, pp. 494-495). Colonel Dodge emphasizes the fact that "Wellington's withdrawal after Busaco illustrates the small gain of a defensive victory without pursuit. Though defeated, Massena turned his opponent out of his position and forced him to retreat" (III, p. 393), while even Napoleon showed great hesitancy in the latter part of 1813, which "was due to his being on the defensive, and illustrates the constant value of the initiative" (IV, p. 125).

An extremely interesting comparison is made between the relative merits of troops in line and in column (III, pp. 48, 280-282, 363; IV, pp. 621-623), and the claim that the idea of mounted infantry* originated with the Americans during the Civil War is disproved by the fact that, in 1812, Napoleon had his dragoons armed with "a very short musketoon" and taught to fight on foot (III,

*The term "Mounted Infantry" simply means infantry mounted for extraordinary mobility. Napoleon's "Dragoons" were cavalry trained to fight mounted or dismounted. An earlier example of mounted infantry was given at King's Mountain, N. C., in the American Revolution, 1780. [EDITOR.]

p. 431). Colonel Dodge's work bristles with most appropriate quotations from Napoleon's despatches, and the appendices at the end of Volume IV form a most valuable adjunct, containing as they do statistical tables showing the casualties in modern wars, and, under the title of "Some Noteworthy Marches," such astonishing feats as Friant's march to Austerlitz—seventy-eight miles in forty-six hours—and the Imperial Guard from Paris to Osnaburg in 1806—435 miles in thirteen days, *i. e.*, thirty-three miles a day. Appendix F contains a partial list of authorities from which the author has derived his information—the idea having been suggested to him by the reviewer—but it would assuredly have been preferable had they been classified according to the chapters to which they relate as in Fornier's "Napoleon," rather than arranged alphabetically in conformity with their surnames.

The final chapter on "Early Military Critics" gives a brief summary of the works of Bülow, Jomini and Napoleon, while the preceding chapter on "The Man and Soldier" contains the best résumé of the Emperor we know. In contrasting him with Alexander, Hannibal, Cæsar, Gustavus Adolphus and Frederick the Great, the author pithily remarks that "Napoleon carries us to the highest plane of genius and power and success, and then declines. We begin by feeling that here is indeed the greatest of captains, and we end by recognizing that he has not acted out his part" (IV, p. 717). Yet despite the early weakening of his forces, he was probably "the most useful man of modern times," and

As a captain he had what rarely coexists—an equally clear head on the map and in the field. On the map he was able in both theory and practice. His theories are text-books; his letters are treatises. No higher praise can be spoken than to say that every one of his campaigns was, in a military sense, properly planned. It is he who collated all that was done by the other great captains, clothed it in a dress fit for our days, and taught the modern world how to make war in perfect form. (IV, p. 713.)

Taken as a whole, Colonel Dodge's work constitutes a most notable contribution to military literature; certainly there exists nothing in English to approach it in scope and interest. While there are, of course, more technical and exhaustive works treating of individual campaigns, one may search every language for a general military history of Napoleon better than Colonel Dodge's—and search in vain.

FREDERIC L. HUIDEKOPER.

Ordnance and Gunnery.*

FROM Benton, through Bruff, to Lissak a half century has elapsed, and in that time ordnance and gunnery has made tremendous advances—more, perhaps, than all that intervenes between the invention of gunpowder and Rodman's experiments and his fundamental discoveries and inventions. Rodman, like all innovators, was strongly converted in his contention that the explosive effect of a charge of gunpowder was a pressure and not a blow. To-day all guns are constructed to resist a constant pressure even until the projectile leaves the muzzle of the gun, and gunpowders are sought after that will pro-

**Ordnance and Gunnery*—A text-book prepared for the cadets of the United States Military Academy. By Ormond M. Lissak, Lieutenant-Colonel of Ordnance Department. New York, John Wiley Sons, 1907.

duce such constant and uniform pressure. These factors resolve gun construction and the manufacture of suitable gunpowders into an exact science. Rodman's original and fertile brain, his powers of analysis, and his wonderful energy and persistence gave to modern warfare more if not all its advances over the warfare of a century ago. In strategy there is not much that is fundamentally new; in military engineering Vauban is still the leader; in tactics there are slight variations and adaptations; in organization there have been advances. In the mechanics of warfare the new has slight resemblance to the old.

Lissak has well performed the work he set out to do—to write a book on ordnance and gunnery for the instruction of the cadets of the United States Military Academy at West Point. He is Professor of the Science of Ordnance and Gunnery at that national institution, and it became his duty to revise the book (Bruff) previously in use, bring it up to date, and improve upon it if possible. It was as well a labor of love and we regret to hear that Lissak is now paying the penalty for the great physical and mental strain involved. It is to be hoped that his devotion to his profession may be worth quite as much as an example to the cadet as the material of his book will assist him in becoming the accomplished officer, for above and beyond all character is the essential to the officer and gentleman.

The fact that the book has received the approval of the Academic Board at West Point, and has been adopted for the instruction of cadets, relieves the writer from any critical detailed discussion of its merits. A cursory examination, however, shows it to be logically arranged, precise, full and clear in its definitions and descriptions and complete except in its omission of any mention of swords, sabers and kindred weapons.

J. W. R.

American Strategy.*

(From the *London Times*.)

COLONEL SARGENT'S previous works on Napoleon's campaigns gave evidence of accuracy of statement, lucidity of expression and a total absence of prejudice and bias. The same merits are conspicuous in these admirable volumes which treat of the fate of Cervera's squadron, of the American expedition to Santiago and of the downfall of the Spanish power in Cuba. It is not the first time that the story has been told, but no other work has surveyed the whole field of strife in a more impartial or comprehensive manner; and as a mere professional study of operations by land and sea, Colonel Sargent's volumes are both of interest and of value.

But for British readers there is even a higher interest attaching to the work, the interest arising from the general situation of the United States and of Spain when the war began, and from the methods in which the two powers dealt with the situation. The primary interest for us is not in the battles, but in the national strategy of the respective combatants. When the war began in April, 1898, Spain had nearly 200,000 men in Cuba, and had been unable to subdue some 25,000 guerrillas who were in arms. This failure, as Colonel Sargent correctly points out, was due to defensive tactics, to waste of means in building *trochas*, to inadequate numbers of mounted men and to failure to act

**The Campaign of Santiago de Cuba*. By HERBERT H. SARGENT. In Three Volumes. (Chicago: A. C. McClurg and Co. London: Kegan Paul. 21s. net.)

with energy. In other words, Spain had sufficient means to repress the revolt, but not the light and leading to employ them to the best advantage. It was this failure, and no other, which permitted the United States to snatch a hard-won triumph on San Juan Hill as the result of an expedition which should have been attended with disastrous consequences if Spanish leading had been on a par with the quality of Spanish troops.

Moral factors apart, the United States owed their victories primarily to their superiority at sea. Though Colonel Sargent declares that the two navies were "not very unequal in fighting power," he gives evidence to disprove his own statement. Spain had nothing whatever to set against the five battle-ships of her enemy except the *Pelayo*, which had not received her guns when the war began. In the group of six armored cruisers which represented the only available asset of Spain for operations in the Western seas, two had not received their entire armament when war began, and the *Colón* sailed without her heavy guns. In three out of five cruisers the breech mechanism of the guns was defective, while the *Viscaya*, not having been docked and cleaned for a long time, reduced the speed of the squadron at the critical moment from a nominal twenty knots to fourteen. One of the six, moreover, had not received her boilers and engines, and, consequently, took no part in the war. On the other hand, Spain had 196,000 regulars and volunteers in Cuba. Havana is only ninety miles from Key West on the coast of Florida, and the 28,000 Regulars of the American Army were scattered about among some ninety-two military posts. There was little cause, indeed, for the "unreasonable terror" which spread all along the Atlantic seaboard of the United States when it was known that Cervera had sailed from the Cape Verde Islands for the West; but that this terror existed cannot be denied. It was the absence of adequate land forces which caused this alarm, and must always cause it when a country realizes all too late that it has been shamefully neglectful of its national duties. It resulted that nearly one-half of the American naval forces was condemned to play the rôle of coast-defense ships, while an immense levy of volunteers was made, thus wholly concentrating attention upon defensive war, and causing much unnecessary expense. The levy of volunteers began with a call for 125,000 men on April 23d; in May there was a second call for 75,000 more, while the increase of the Regulars to 62,597 men was authorized. Within a few days 1535 mines were laid in American harbors, and guns were mounted in every direction with feverish activity. By August no fewer than 274,717 officers and men had been organized, mobilized and equipped in eight army corps, each of three divisions. It was found that the supply of modern rifles and of smokeless-powder cartridges was totally inadequate for the numbers raised, and the same thing would be found in England in a similar case.

Until America's neglect of her land forces had been remedied, her Flying Squadron was tied to the coast and unable to prosecute offensive war. On May 18th it reached Key West from Hampton Roads, but on May 19th Cervera reached Santiago unseen and unfought, remaining there for ten days before ships were available to begin its blockade. The land forces of the United States were then called upon to ferret out the Spaniards from their lair because the American Navy had been employed on duties which properly belonged to land forces, and had not, therefore, been in a position to intercept the Spanish ships. Had Cervera made for Havana it is possible that he might have forced the blockade and entered the port. In this case the capture of Havana

would have been imposed upon the Americans, and as there were 60,000 Spanish troops at or near the town the effort might have proved too great, at all events until a considerable time had elapsed. By entering Santiago harbor Cervera allowed the United States to "cut out" the squadron with an expedition of 17,000 men under the eyes of 196,000 Spanish troops in Cuba. The American expedition which sailed from Tampa on June 14th included 14,350 Regulars and 2600 volunteers. There were 36,582 Spanish troops in Santiago province, and these alone, to judge by the valor displayed by weak detachments at El Caney and San Juan, should have been enough to defeat General Shafter in the field, had a glimmer of sense been visible in Spanish leading. Fortune, as her custom is, helped the bold. In twenty-four days Shafter drove Cervera out to his doom, won two well-contested fights, and compelled the surrender of the Spanish garrison of 22,700 men. Practically none of the new volunteers were engaged in Cuba except three corps, of which the Rough Riders consisted of men accustomed to the use of the rifle. The increase of the Regulars added little or nothing to their strength for offensive operations, since commanding officers refused to take recruits with them. The success was the success of the trained Regular Army, which alone can be trusted at the beginning of a war to undertake, in co-operation with the navy, those difficult and delicate operations of which the campaign of Santiago de Cuba affords such an interesting example.

But the heavy cost involved in raising and maintaining a quarter of a million volunteers on the soil of the United States was far from being money wasted. Colonel Sargent shows that the campaign was brought to an end because it was known that this number of men would have been available in the autumn for active operations, and would have been employed in case of need. It was, in short, the combined influence of land force and sea power that decided the result of the war, and so it must always be in the case of belligerent States whose territories are separated by the sea. To fight with a navy alone or an army alone, against an enemy who understands the business of war, is to fight with one hand against an opponent who uses both his fists. It is also clear that in the war with Spain the President of the United States felt the want of an advisory board which "should have worked out in advance the best plans to follow in the contingencies that would most probably arise, not for the army alone, nor for the navy alone, but for both."

* * * * *

NOTE.—General King's review of this book (in November JOURNAL) occupies all the space ordinarily given to a single publication. The *Times*, however, gives an interesting foreign estimate of the campaign, which justifies republication here.—EDITOR.

Our Exchanges.

American Society of Civil Engineers (January).
Army and Navy Journal (to date).
Army Service Quarterly (London) (October).
Army and Navy Chronicle (London) (January).
Artilleristische Monatshefte (February).

Artilleri-Tidskrift (to date).
Arms and the Man (February).
Boletin del Centro Naval (January).
Bulletin American Geographical Society (January).
Canadian Military Institute (to date).
Current Literature (February).
Journal of the Association of Military Surgeons (February).
Journal of the Royal Artillery (January).
Journal of the United States Artillery (December).
Journal of the U. S. Cavalry Association (January).
Journal of the U. S. Infantry Association (January).
Journal of the Royal U. S. Institution (January).
Journal of the Western Society of Engineers (January).
La Revue Technique (to date).
La Belgique Militaire (to date).
Our State Army and Navy (Penna.) (to date).
Political Science Quarterly (December).
Proceedings of the U. S. Naval Institute (December).
Review of Reviews (to date).
Revista di Artiglieria e Genio (January).
Revista Del Ejercito Y Marina (February).
Revue de l'Armee Belge (to date).
Revue Militaire (January).
Revue Artillerie (January).
Ridgway's (to date).
Royal Engineers' Journal (January).
The Army and Navy Life (to date).
The Arrow, Indian Industrial School (to date).
The Cavalry Journal (London) (January).
The Century Magazine (February).
The District Call (to date).
The Medical Record (to date).
The Pennsylvania German (February).
The Popular Science Monthly (February).
The Scientific American (to date).
The Seventh Regiment Gazette (November) (February).
United Service Gazette (London) (February).
United Service Magazine (London) (February).

Received for Library and Review.

Over Seas in Early Days (1828-29). By Lieut. John Farley, U. S. A.
 Edited by Joseph Pearson Farley, U. S. A. (Kansas City, Mo.)
 Franklin Hudson Pub. Co., 1907.
Map Maneuvers. By Capt. Farrand Sayre, Eighth Cavalry, Instructor
 Dept., Mil. Art, U. S. Army Staff College, Fort Leavenworth,
 Kas., 1907.

- A Military Primer.* Prepared for the cadets of the Fourth Class, U. S. M. A. By Capt. Francis C. Marshall, Fifteenth Cavalry, and Capt. Geo. S. Simonds, Twenty-second Infantry, 1907.
- Templar Tactics and Manual.* By Langdon S. Chilcot. (Bangor, Me.) Thomas W. Burr Printing Co., 1908.
- Guide to Promotion for Officers in Subject "A"* (Regimental Duties). By Capt. R. F. Legge, the Prince of Wales' Leinster Regiment. (London.) Gale & Polden, Ltd., 1908.
- Handbook of the Maxim Gun: Its Mechanism and Drill, with Questions and Answers.* Revised Edition. (London.) Gale & Polden, Ltd., 1908.
- A History of the United States Navy.* By John R. Spears, Ill. (New York.) Charles Scribner's Sons, 1908.
- Hints on Horses.* By Maj. H. P. Young, late Bombay Fourth Cavalry. (London.) Gale & Polden, Ltd., 1908.
- Present Status of the Panama Project.* By Brig.-Gen. Henry L. Abbot, U. S. A., retired. Reprinted from the Annals of the American Academy of Political and Social Science for January, 1908.



Annual Report for 1907.

THE Executive Council reports with gratification an increased interest in the objects of the MILITARY SERVICE INSTITUTION on the part of both officers of the Regular Army and the officers of the National Guard.

Recent legislation, affecting, in the near future, the relations of the Organized Militia of the several States to the Army of the United States, has aroused an interest on the part of the officers of both services in an immediate consideration and discussion of the relations of these two organizations to the General Government and to each other.

We have added to our membership, during the past twelve months, 140 new members, being a gain of seventy-two members. The contributions to the JOURNAL are continuing to be of general interest and value.

The library has had an increase of one hundred volumes. The prize essays have been of a high order.

The Council seeks the co-operation of the members of all branches of the service in securing, through written proposals of subjects for prize essays, questions for discussion which may prove to be of the most interest to our readers and to military students.

A year ago Maj.-Gen. THOMAS HOWARD RUGER, U. S. A., then the distinguished and honored President of this INSTITUTION, in presenting the annual report of the Executive Council for the year 1906, called the attention of the members to the loss in the active management of our affairs, through the death, on December 31, 1906, of Brig.-Gen. JOHN WALKER BARRIGER, U. S. A., the zealous and painstaking chairman of our Committee on Finance and Publication and at the time of his death one of the resident vice-presidents.

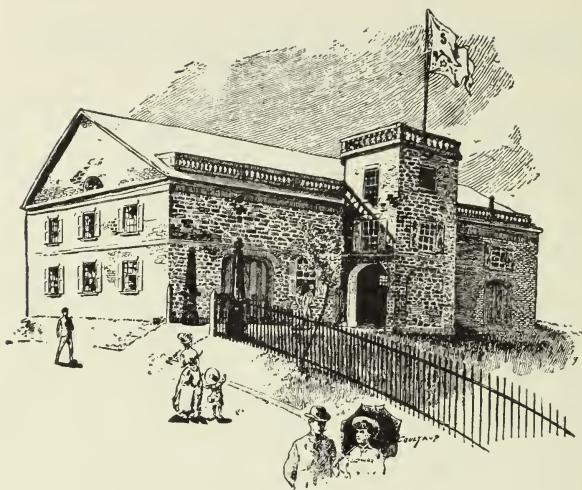
To-day we record with unfeigned regret the great loss to our Council, through the deaths of General RUGER, Gen. HENRY STUART TURRILL and Col. JOHN EDMUND GREER.

General Ruger's tact, wisdom, justice and firmness were displayed throughout his association with us, his lofty patriotism, "his literary attainments and his well-known executive ability had made him the natural choice for the presidency of the INSTITUTION."

General Turrill and Colonel Greer were alike distinguished for exalted ideas, care and fidelity in the performance of public duties and for their devotion to the interests of the military service.

ALEXANDER S. WEBB,
President.

GOVERNORS ISLAND,
January, 1908.



THE MUSEUM OF THE MILITARY SERVICE INSTITUTION OF THE UNITED STATES,
GOVERNOR'S ISLAND, NEW YORK HARBOR.

Editor's Bulletin.

Board
to
award
Santi-
ago
Prizes.

THE *Santiago Prize* for 1907 will be awarded upon the recommendation of a Board of Officers selected by the President of the Society.

Papers
of
Special
Interest.

Notable Papers in this number of the JOURNAL are those entitled "Study of the Conditions of Warfare in North-eastern Morocco," "Cavalry Operations During the Russo-Japanese War," "The Military Shoe and the Military Foot," "The Transmission of Military Intelligence" and "Tropical Infection"; also the "Discussion" on the Relations between the Army and Organized Militia.

Gifts
to
Museum.

The Museum has received from:

Lieut.-Col. CLARENCE DEEMS, Coast Artillery, *Large Drawing of the Attack on Fort McHenry, 1814.*; also *Blue Print Plan.*

Capt. GEORGE H. PENROSE, Quartermaster's Department, *Pair of Silver Epaulets*, worn by Major Penrose, U. S. A., at the capture of the City of Mexico, 1847.



Journal
of the
Military
Service
Institution

1878

1908

Governor's
Island
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THE JOURNAL

MAY-JUNE, 1908



OME papers received for publication in the JOURNAL:

I. "THE MILITARY NECESSITIES OF THE UNITED STATES AND THE BEST PROVISIONS FOR MEETING THEM."
(Gold Medal Essay.)

II. "THE FORTIFICATIONS OF SAN JUAN, P. R." (III.)
By Capt. Arthur P. S. Hyde, Coast Artillery.

III. "MILITARY BANDS." II. By Major F. A. Mahan, U. S. A.
(retired). (Continued.)

IV. "THE ALDERSHOT COMMAND MANEUVERS OF 1907."
(III.) By Capt. D. W. C. Falls, Adjutant 7th Regt. N. G. N. Y.

V. "CAVALRY OPERATIONS IN THE RUSSO-JAPANESE WAR." III. (III.) By Lieut.-Col. J. C. Gresham, 14th U. S. Cavalry.

VI. "MOUNTAIN BATTERY ORGANIZATION." By Major E. F. McGlachlin, 4th Field Artillery.

VII. TYPES AND TRADITIONS OF THE OLD ARMY. "THE STEPTOE - WRIGHT EXPEDITIONS AGAINST THE NORTHERN INDIANS, 1858." (Illustrated.)

THE PUBLICATION COMMITTEE invites contributions of original papers, translations and comments upon current topics. Attention is called to "Gold Medal," "Seaman," "Short Paper," and "Santiago" prizes described elsewhere.

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NOTE.—Checks and Money Orders should be drawn to order of, and addressed to, "The Treasurer Military Service Institution," Governor's Island, New York City. Yearly dues include Journal.

No Address changed without Notice.



Gold Medal—1908.

First Prize—Gold Medal, \$100 and Life Membership.

Second Prize—Silver Medal, Honorable Mention and \$50.

I.—The following Resolution of Council is published for the information of all concerned:

Resolved, That a Prize of a Gold Medal, together with \$100 and a Certificate of Life Membership, be offered annually by THE MILITARY SERVICE INSTITUTION OF THE UNITED STATES for the best essay on a military topic of current interest, the subject to be selected by the Executive Council, and a Silver Medal and \$50 to the first honorably mentioned essay. Should either prize be awarded more than once to the same person, then for each award after the first, a *Clasp* shall be awarded in place of the medal.

1. *Competition to be open to Members and Associate Members only.**

2. Each competitor shall send three copies of his essay in a sealed envelope to reach the Secretary *on or before January 1, 1909*. The essay must be strictly anonymous, but the author shall adopt some *nom de plume* and sign the same to the essay, followed by a figure corresponding with the number of pages of MS.; a sealed envelope bearing the *nom de plume* on the outside and enclosing full name and address, should accompany the essay. This envelope to be opened in the presence of the Council after the decision of the Board of Award has been received.

3. The prize shall be awarded upon the recommendation of a Board consisting of three suitable persons chosen by the Executive Council, who will be requested to designate *the essay deemed worthy of the prize*; and also in their order of merit those deserving of honorable mention.

In determining the essay worthy of the prize, the Board will be requested to consider its professional excellence, usefulness and valuable originality, as of the first importance, and its literary merit as of the second importance. Should members of the Board determine that no essay is worthy of the prize, they may designate one or more essays simply as of honorable mention; in either case, they will be requested to designate one essay as first honorable mention. Should the Board deem proper, it may recommend neither prize nor honorable mention. Should it be so desired, the recommendation of individual members will be considered as confidential by the Council.

4. The successful essay shall be published in the Journal of the Institution, and the essays deemed worthy of honorable mention shall be read before the Institution, or published, at the discretion of the Council, which reserves the right to publish any other essay submitted for a prize, omitting marks of competition.

5. Essays must not exceed ten thousand words, or twenty-five pages of the size and style of the JOURNAL (exclusive of tables), nor contain less than five thousand words.

II.—The Subject selected for the Prize Essay of 1908 is

**“WHAT IS THE CAUSE OF THE RECENT FALLING OFF IN THE
ENLISTED STRENGTH OF THE ARMY AND NAVY, AND WHAT
MEANS SHOULD BE TAKEN TO REMEDY IT?”**

III.—The Board of Award is named as follows:

Rear Admiral CASPAR P. GOODRICH, U. S. N.
Major-General WILLIAM F. DUVAL, U. S. A.
Brig.-General EDWARD S. GODFREY, U. S. A.

GOVERNOR'S ISLAND, N. Y.,
Jan. 1, 1908.

T. F. RODENBOUGH,
Secretary.

*As amended Nov. 13, 1907.

1908

Annual Prizes—1908

THE SEAMAN PRIZES.

(Founded by Major L. L. Seaman, M.D., LL.B., late Surgeon, U. S. V.)

One Hundred Dollars.

Seaman
Prize
I

For best essay on a subject selected by Major Seaman and approved by Council; competition open to all officers and ex-officers of Army, Navy, Marine Corps, Marine Hospital Service, Volunteers or National Guard; in other respects same as Gold Medal prize except that essays are limited to 15,000 words, and are due November 1.

Subject: "The Medical Department of the United States Army: Upon what lines should its much needed Reorganization be instituted?"

Board of Award: Col. P. F. HARVEY, M.D.; Capt. CHARLES LYNCH, M.D., and Capt. N. S. JARVIS, M.D., U. S. A.

Fifty Dollars.

Seaman
Prize
II

(Rules same as Prize I, except that essays shall comprise not less than 2,000 nor more than 5,000 words.)

Subject: "The Company Non-Commissioned Officer: How can his efficiency be best promoted and his re-enlistment be secured?"

Board of Award: Brig.-Gen. J. P. MYRICK, U. S. A.; Lieut.-Col. R. L. HOWZE, U. S. A., and Capt. J. H. McRAE, Gen. Staff.

THE SANTIAGO PRIZE.

(Founded by the National Society of the Army of Santiago de Cuba.)

Fifty Dollars.

Santiago
Prize

For "best article upon matters tending to increase the efficiency of the individual soldier, squad, company, troop or battery," published in the JOURNAL M. S. I. during a twelvemonth, ending December 1; awarded upon recommendation of Board selected by President N. S. A. S. C.; competition limited to officers of the Army and National Guard below grade of Lieut.-Colonel; essays not less than 1,000 nor more than 5,000 words.

HANCOCK PRIZE.

Fifty Dollars.

Short Paper
Prizes

For best short paper on matters affecting the *Line* of the Army, published in the JOURNAL during twelve months ending May 1.

FRY PRIZE.

Fifty Dollars.

For best short paper on matters affecting the *General Service* not covered by Hancock Prize, published during the twelve months ending Sept. 1.

Essays to be not less than 1,500 nor more than 3,500 words.

Gold Medalists, M. S. II.

1880. GIBBON, J.; Col. 7th U. S. Inf., and Bvt. Brig.-Gen.**
1882. LAZELLE, H. M.; Lieut.-Col. 23d Inf. (now Brig.-Gen., retired).
1883. WAGNER, A. L; Lieut. 6th U. S. Inf. (late Col. A. A. G.)**
1884. PRICE, G. F.; Captain 5th U. S. Cavalry.**
1885. WOODHULL, A. A.; Bvt. Lieut.-Col. M. D. (Brig.-Gen., retired).
1886. WOODRUFF, T. M.; Lieut. 5th U. S. Infantry.**
1887. SHARPE, A. C.; Lieut. 22d U. S. Inf. (now Lieut. Col., 30th Inf.)
1889. READ, G. W.; Lieut. 5th U. S. Cavalry (now Capt. 9th Cavalry)
1891. REED, H. A.; Lieut. 2d U. S. Artillery (Brig.-General retired).
1892. STUART, S. E.; Lieut. (late Capt.) Ordnance Department, U. S. A.**
1893. SCRIVEN, G. P.; Captain (now Lieut.-Col.) Signal Corps, U.S.
1894. ELLIS, E. A. • Captain 8th U. S. Cavalry.**
1895. SHARPE, H. G.; Captain (now Commissary-General), U. S. A.
1896. PETTIT, J. S.; Capt. 1st U. S. Infantry (late Lieut.-Col. 8th Inf.)**
1897. FOOTE, S. M.; Lieut. 4th U. S. Artillery (now Major Artillery Corps).
1899. BRITTON, E. E.; Colonel N. G. N. Y.
1900. (No Gold Medal Awarded)
1901. STUART, E. R.; Lieut. (now Capt.) Corps of Engineers.
1902. STUART, E. R.; Lieut. (now Capt.) Corps of Engineers.
1903. TRAUB, P. E.; Capt. 5th U. S. Cavalry.
1904. RHODES, C. D.; Captain (6th U. S. Cavalry) General Staff.
1905. (No Gold Medal Awarded.)
1906. STUART, E. R.; Captain Corps of Engineers.

**Deceased

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"I cannot help plead to my countrymen, at every opportunity, to cherish all that is manly and noble in the military profession, because Peace is enervating and no man is wise enough to foretell when soldiers may be in demand again."—GENERAL SHERMAN.

Vol. XLII.

MAY-JUNE, 1908.

No. CLIII.

Gold Medal Prize Essay.

THE MILITARY NECESSITIES OF THE UNITED
STATES AND THE BEST PROVISIONS FOR
MEETING THEM.

BY CAPTAIN ALFRED W. BJORNSTAD, TWENTY-EIGHTH INFANTRY,
UNITED STATES ARMY.



THE late Thomas B. Reed, when he was Speaker of the House of Representatives, on one occasion listened to the speech of an opposition member who read the House a severe lecture on its extravagance. Presently the member exclaimed, "This Congress has already appropriated the appalling and unprecedented sum of a billion dollars"; whereupon the Speaker interjected the remark, "My friend, this is now a billion-dollar country."

The increase of expenditure involved is the stumbling block of many desirable and seemingly imperative reforms and extensions of government, and it is a trite observation to add that, rather than the menace of an armed force, it is the prospective swelling of the appropriations to which may be ascribed the successful opposition to military and naval development by apprehensive, but near-sighted Americans. It may be taken as a maxim that nothing which bears the slightest resemblance to a sound and ample provision for national defense can ever be secured without substantial increase of expenditure over and above the amount now usually allotted by Congress

for this purpose. The subject must be approached in Speaker Reed's temper if our Government is to discharge properly its unmistakable duty of providing ample insurance for the integrity of the innumerable interests which are subject to possible violence from within or without.

It is not my purpose to discuss the self-evident proposition that a defenseless nation is something less pardonable than an absurdity. Neither do I intend to examine the illogical succession and patchwork of expedients which we are prone to dignify with the title of a military policy. A plain truth confronts us: We have no military strength and have not given due thought to the vital problem of extracting from our unequalled military resources sufficient military strength to meet successfully any possible enemy or emergency, and of devising a method for obtaining this strength at the lowest practicable financial and economic cost.

Any true policy must have a clear end in view; the development of a force of a determined size and composition, and must tolerate nothing inconsistent with or prejudicial to that end. A clearly defined end will in itself partly justify every successive step in its attainment. Witness the successful instance of the Endicott Board which, in its restricted field, outlined a desired extent of coast defense. Its recommendations unquestionably have resulted in the hastening of work to a stage far in advance of the development of a force to man these identical defenses, and certainly far in advance of present-day provisions for confronting an enemy with a dependable army. The total absence of any other plausible explanation warrants the conclusion that the improved state of our coast defense is simply the result of an authoritative determination of the country's needs in that particular direction, and, in vivid contrast, that our inability to place in the field in three months a modest army of ten good divisions is due to the fact that our whole military structure, instead of being a wise and timely provision for a serious war, built up to meet the requirements of a sound and predetermined policy, is hardly more than the necessary consequence of a succession of minor exigencies and their resulting expedients.

Our most urgent need is a military policy; a policy undeviatingly pursued and designed to provide a peace organization expandible, in time of war, to a trained, effective and properly balanced army of a predetermined maximum size, or any desired lesser size; a policy which, in time of peace, anticipates

as much as the human mind can anticipate, and leaves to the early days of the war as little as possible undone; and, lastly, a policy which gives the Government the desired military strength with the least expenditure consistent with the absolutely indispensable qualities of preparedness and efficiency. But here we are confronted with a real difficulty. Neither the form nor the traditions of our Government are conducive to the perpetuancy of policies involving large expenditures of money. There is but rarely a prolonged life for any stated line of effort unless vividly held before the public eye, and persistence in the attainment of a desired end is as intermittent with us as it is dogged and determined in many governments whose people have attained their highest prosperity through sheer force of governmental strength and protection, and not in spite of the lack of it. Still there is cause to believe that the recommendations of such a body as the Endicott Board deserve the appellation of a policy, inasmuch as they have an authoritative and continuing force. By the utilization of similar means, the conception of a well-considered project for national defense by a duly empowered commission of experienced legislators and a suitable number of officers of the army would command the respect of each succeeding Congress, thus materially assisting in the realization of the project as expeditiously as, in the opinion of that body, the resources of the Government would permit. In the light of our well-known unpreparedness, the decisive developments in the Far East in the past decade, and our increased, though unavoidable participation and concern in international affairs and their resulting conflicts, it does not seem possible that Congress would ignore a suggestion from the War Department that a commission be appointed to report a proposed scheme of national defense as a necessary guide to the Department in its plans for the discharge of its all-important function of providing the means for conducting war with desirable despatch and certain success. In this commission Congress must be strongly represented to give the body the disinterested and authoritative voice that might be denied a commission created by the War Department itself. The most ardent advocates of preparedness for war may reasonably believe that there would be evolved an army not only vastly stronger and better than the illogical and disjointed affair we may expect to see result from the customary dabs of legislation, but easier of attainment. It will be easier of attainment because each successive advance in the realization of the plan

will be but another step toward a clearly defined goal, precisely as every battle-ship desired by the British Admiralty is readily granted because a two-power navy is firmly fixed in the public mind as the goal of England. It will be easier of attainment because each move forward can be justified as an action necessary to and in consonance with a plan which is as nearly a national military policy as any we may hope to establish.

As a nation we admit the probability of our participation in war in the future and we admit the probability of war with a powerful enemy. This may leave us in doubt as to two important considerations, the identity of the enemy and the location of the theater of war. On the other hand, and in view of the unquestioned and overwhelming military superiority of the great powers, we are left in absolute certainty as to one vital consideration, which is that the enemy will be the first to arrive at the theater of war in superior numbers and effectiveness. The colossal advantage of this maneuver, and the cost in time, money and lives, to restore equal terms, are too apparent to be in need of exposition. In a country with abundant resources, and yet much to lose, a policy which willingly surrenders this advantage to any potential enemy in any probable theater of war is unthinkable. The basis on which we calculate our military preparations cannot possibly be established without a careful study of the enemy's probable strength in any quarter in which he may be encountered. But it is possible to state here only in the briefest manner the deductions resulting from a review of our situation. We may say that an American invasion of Europe and of Japan, single-handed, is so extremely improbable that it may be dismissed from our calculations. Any invasion of the United States on the enormous scale which threatens many European governments is equally improbable. In a war between the United States and one of the strong military powers both would be reasonably secure in their home countries and, of necessity, the war would be carried to a neutral or outlying part. It must be granted that there exists with us no stern necessity for equaling the enormous armies of several European countries; but it is preposterous to say that we need not prepare to meet an enemy on equal terms in those parts which we concede to be possible scenes of conflict.

The Manchurian War affords an apt illustration of a war conducted beyond the domestic limits of the belligerents, and serves us admirably in our attempt to ascertain what force a

prepared government (and possible enemy) can despatch to a distant theater of war at the very outbreak of hostilities. Russia and Japan each effected a prompt mobilization of 250,000 men of their standing armies; troops that were trained to the highest degree of perfection permitted by the corruption and sluggishness of one and the shrewdness, energy and patriotism of the other. In the succeeding months of the war each mobilized additional or secondary troops, and utilized in all approximately 1,000,000 men. A recent increase of six infantry and some cavalry divisions to its standing army, and the rapid growth of its merchant marine, will probably increase to 300,000 Japan's immediately available army for use, let us say, in the Philippines, Alaska, Hawaii and Panama. The object for which Germany maintains its vast army of 5,000,000 active and reserve troops would be defeated if too large a contingent were sent beyond the shores of Europe; but with reasonable safety, and without suffering any grave inconvenience because of the lack of transports, the Emperor can despatch half (290,000) of his standing army over seas to Germanized Southern Brazil or any other contested point. For identical reasons, and with almost identical forces, France is capable of a similar maneuver. England forwarded 400,000 men to South Africa and actually maintained 250,000 at one time. It is true that no such force reached the Transvaal in the early days of the war, but the delay in forwarding the great army that eventually defeated the Boers was due to a tardy recognition of the enormity of the task. Certainly it was not due to the lack of troops or transports.

With these recent instances of mobilization before us, it must be sufficiently plain that we shall be thrown into a costly and humiliating defense unless we have, in addition to adequate coast-defense troops and the forces so distantly or unfavorably stationed as to be unavailable, at least 250,000 first-class troops prepared for immediate mobilization and tangible evidences of a good second line of about 700,000 men.

Ignoring entirely the incontestable truth that a nation armed to meet any foe is for that very reason alone, to a great degree, immune from war not of its own choosing, it concerns us more in our present situation to point out that the opposite course, failure to enter upon a war with a degree of preparation and resource fully equal to that of the enemy, can only result in the adoption of measures repeatedly proved to be the costliest, most discouraging and humiliating expedients that a government can

inflict upon its people; the imperfect organization and hasty, yet tardy, despatch of an untrained, unprofessional army to dislodge a firmly established and seasoned enemy. The temper of our people, ignorant and thoughtless in military affairs, will not tolerate the patient and costly defense which is the logical alternative of unpreparedness. It will demand the swift extermination of the enemy. Premature and ill-judged cries of "On to Richmond" have moved an unwilling and unready government before now and will do so again, though the cost be reckoned in thousands of lives and countless disasters. Every consideration of security, humanity and true economy, therefore, points to preparedness, and a study of our situation, specially fortunate though it is, indicates with convincing force the need of an immediately available organization comprising coast-defense troops and the mobile troops just mentioned. We have sufficient proof of the inadequacy of a smaller force as proper insurance of our interests in the Far East, in the Pacific and in Latin America. A smaller force could not occupy Canada with the swiftness, certainty and permanence indispensable as an offset to the undoubted and immediate advantage of England on the sea.

The function of this mobile army is so distinct, and the importance of its perfect preparation so great, that it, together with an ample and expert coast artillery, must be considered the first grand division of our military organization; in other words, the first line. But let there be no misapprehension as to the requirements of an army schooled to combat successfully the efficient machines of modern world powers. Let there be no misguided belief that the marvelous genius of America can overtake at a bound the enemy's patient labor of years. We must provide the best instruments known to military science. From the recruiting stations, arsenals, wagon-shops and supply markets to the schools where the contributions of these are welded into responsive parts of a fighting machinery; to the mobilization of the perfected machine; to the advance into the theater of operations and the search for contact with the enemy; even to the farthest point on the road where the strength of the nation tapers at last to a solitary squad struggling with telephone and reel to report what trained eyes have seen, we must provide forethought, science and training, or invite disaster. The instant war begins the school days are over for the army which must be thrown against the enemy with all haste. We have so many

evidences of the limitations of our militia system, and we have such compelling proof of the increasing tendency toward particularity and thoroughness of preparation in all armies, that we cannot, under the most favorable conditions conceivable, grant to the militia a place in this small first line. We are blind to the incalculable power of training, organization and true preparedness if we concede that it can be anything other or less than the war strength of the Regular Army.

THE FIRST LINE.

An examination of a recent report of the Chief of Artillery discloses the fact that our coast defenses require, in time of war, 1800 officers and 45,000 men, exclusive of coast-artillery supports. The strength of a company will depend upon the needs of the battery to which it is assigned. The average strength required is 104 men; therefore, 430 companies are needed in the corps. In determining the strength of each arm of the mobile army, the only consideration must be the even balance and serviceability of the whole. We cannot concede the wisdom of the ridiculously small proportion of cavalry in the Japanese Army, in spite of the repeated successes of that army in Manchuria. We prefer the well-established ratio of one saber to five rifles. The field-service regulations establish a ration of $3\frac{1}{3}$ guns for each thousand infantry and cavalry, and about forty men to each gun. Availing ourselves of these ratios, we find that an infantry force of 220,000 requires 44,000 cavalry, and that these troops must be accompanied by 880 guns served by 35,200 men. This aggregate of 299,200 mobile troops does not include the necessary engineer, signal corps and hospital corps organization, the number of which is largely dependent upon the tactical organization of the three arms. But this aggregate does represent the actual needs of the three arms, as will be demonstrated later.

It may be asserted with confidence that, in addition to the war strength contemplated by existing regulations, an infantry company must be provided with three or four skilled men to be employed within the company or regiment in tactical lines of communication, and that an infantry regiment must have its machine-gun company. Thus augmented, an infantry regiment will represent about 1740 men, and 126 such regiments will provide an infantry strength of 219,240. While tactical considerations demand this increase in the strength of infantry

regiments, there is an equally strong demand for reducing the unwieldy size of cavalry units. There is neither space nor occasion to reiterate here the many excellent arguments for this reduction which have been advanced recently by able cavalry officers in our service. There is every indication, however, that the views of these officers will prevail and that we shall accept something less than 1000 men as the strength of a cavalry regiment. If then we assume forty-six regiments of cavalry, each 960 strong, we have a cavalry force of 44,160. Thirty-six regiments of field-artillery are required to serve the necessary guns. We are now able to determine and tabulate the organizations which must constitute the first line, and in doing so we note that the organization, as established by the ratios used, yield exactly fourteen complete infantry divisions and a maximum of eight cavalry divisions, according to the principles of our field-service regulations.

	Cavalry Regiments	Infantry Brigades	Infantry Regiments	Artillery Brigades	Artillery Regiments	Engineer Battalions	Signal Corps Companies	Field Hospitals	Coast Artillery Companies
14 Infantry divisions..	14	42	126	14	28	14	14	56	....
6-8 Cavalry divisions..	32	....	....	....	8	2	8	8	....
Coast Defence .....	....	....	....	....	....	....	....	....	430
Total	46	....	126	....	36	16	22	64	430

Immediately one asks if it is possible to erect so vast a structure without menace to our solvency, without positive terror to those peace-loving citizens who conceive our principal military strength to lie in the undoubted interposition of Providence, and, at the same time, without introducing a number of Regular Army reserves and recruits so large and imperfectly trained as to destroy the efficiency of the whole upon mobilization. That this may be accomplished, however, with a reasonable expenditure of money it is my intention to show. And whatever may be the exact war strength of the Regular Army the application of the essential features of the system I propose must be the same. These essential features may be outlined in the following manner: (1) A Regular Army peace establishment of one-half the units or organizations required by the first line in time of war. (2) Conditions which will favor the enlistment of suitable

men in sufficient numbers. (3) An enlistment contract which will insure a supply of reserves and keep the army intact in time of war. (4) The creation of a body of reserves. (5) Provisions for supplying line officers for the expanded Regular Army. (6) Regulations for the selection of general and staff-officers for the expanded Regular Army and regular volunteer officers for the second line. (7) The maintenance of paper (duplicate) organizations by the organizations of the peace establishment. (8) Remedies for the depletion of ranks and absenteeism which have crippled our armies in the past. (9) Additional facilities for training.

Peace Strength and Organization of the Regular Army. To what extent may a peace unit, a regiment, let us say, be expanded by the addition of officers and men without immediate loss of effectiveness as a fighting unit? Since the first line must be effective at the moment of mobilization it cannot be gainsaid that this question must be answered satisfactorily before a peace strength less than the war strength can be possible. If the additional officers and men are without ability and experience it may safely be said that the regiment cannot be expanded at all. If, however, the officers of the regiment are fitted for their next higher grades, and the companies of the regiment average three or four non-commissioned officers qualified to perform the duties of subalterns and fifteen or twenty privates competent to act as squad leaders, it is evident that two regiments can be formed from one, in so far as officers and non-commissioned officers are concerned. If, in addition, there are sufficient reserve soldiers, well trained, immediately available, and not too long separated from active service, we may have two good regiments where formerly we had but one. Whether or not a regiment can sustain a greater degree of expansion than this is doubtful. The task of training, selecting and retaining in service fifty or sixty non-commissioned officers for commissioned rank and two hundred or more privates for non-commissioned rank in anticipation of the expansion of the regiment requires that the field shall not be too restricted. Under the improved conditions, which must be introduced into the Regular Army in any event, this, it is believed, is a fair limit of expansion for a good regiment. The men selected for these positions must come from the active army. There is absolutely no other source of supply; there are no such apprentices anywhere else to be had.

The Government must choose between the two methods, which alone are feasible. The Regular Army must be maintained at the full strength demanded by the first line, or it must be capable of immediate expansion to that strength without loss of effectiveness. It is superfluous to add that the latter is the inevitable choice. It is obvious that a Regular Army with a peace strength of 300,000 is impossible. But because of the necessary standard of training and the competition of volunteer organizations of the second line it is equally obvious that no important and prompt augmentation of the peace footing by ordinary recruiting is practicable at the outbreak of war. A body of reserves, physically tested and professionally trained by service in the Regular Army, can be the only satisfactory source of supply in the emergency for which we must increase that army to its maximum strength. It would be unwise to attempt this expansion without careful and timely provisions for the resulting important changes in personnel and numbers; but it will be admitted, I think, that the provisions which I shall suggest will accomplish the desired result.

The application of this principle of expansion would result in a coast-artillery corps of 215 companies and a mobile army of seven infantry and three or four cavalry divisions. The infantry and cavalry divisions include sixty-three regiments of infantry, twenty-three regiments of cavalry, eighteen regiments of field-artillery, eight battalions of engineers, eleven signal corps companies, and the equipment and personnel for the necessary hospitals, trains, etc.

That the coast defenses completed and under construction in the United States and various insular harbors require 215 coast-artillery companies for constant peace service hardly admits of a doubt. The exhaustive analysis of the Chief of Artillery showing the needs of the United States proper, taken in connection with the well-known immediate future needs elsewhere, establishes the peace strength of the coast-artillery corps at 215 companies, thus necessitating the same degree of expansion in time of war as has been found necessary in the mobile army.

In considering the propriety or necessity of maintaining seven infantry and three or four cavalry divisions, several important requirements of the peace establishment present themselves. It must furnish the contingent for foreign service without imposing on officers and men such long and frequent periods of tropical service as will jeopardize their health and continued

usefulness to the Government. There are now six cavalry and sixteen infantry regiments on foreign service. Marine corps detachments equal to more than two regiments must eventually be replaced, probably by infantry, making the army's foreign service contingent equal to one cavalry and two infantry divisions. That this foreign service detachment will be decreased permanently in the future no one can believe. With the organization advocated infantry regiments would still serve less than five years and cavalry regiments less than six years in home stations. That officers or men, with rare exceptions, can endure more tropical service than this through any extended connection with the army, without serious physical and professional deterioration, is too generally appreciated by persons with tropical experience to require further comment.

But still another important consideration has an urgent bearing on the size of the peace establishment. Deductions being made for organizations so situated (as in the Philippines) as to render their availability doubtful, there must remain in or near the United States such organizations of the first line as will provide on mobilization the formidable army necessary for immediate despatch to the theater of war. The object for which this first line is advocated contemplates its use in a crisis which demands an army of not less than 250,000 combatants of the highest order of training. It is certain that the infantry and cavalry divisions stationed in the United States could not be reinforced by the organizations serving in the Philippines unless the latter place were the destination of the mobilized army. It is certain, furthermore, that in a conflict elsewhere with any of the great powers the Philippines garrison itself must be reinforced rather than reduced. Assuming that troops at near-by foreign stations could be withdrawn temporarily and subsequently replaced by volunteers, the maximum force that could be mobilized by the expansion indicated would be twelve infantry and six cavalry divisions. With artillery, engineers and signal corps troops this force would aggregate 365,000 men.

Conditions Favorable to Enlistments. It must suffice barely to enumerate here the conditions which must exist to insure the enlistment of suitable men in sufficient numbers. The reasons for the increase and readjustment of the pay of enlisted men are apparent. The need of what may be called a general service corps is equally apparent, although there is less agreement as to the nature of the desired remedy. It is obvious that

there are two broad divisions or kinds of general service: First, there are the non-military duties connected with posts, permanent camps, supply departments, etc., such as clerical work, labor, repairing and gardening. The plain remedy for the present intolerable conditions is the establishment of general service detachments where needed, large and varied enough to perform the necessary duties precisely as if no troops were present to assist in the work. Any provision less ample than this must be a half-remedy or makeshift at best. Then again there are certain regular duties in connection with troops in the field which keep certain men permanently away from the firing line, such as cooks, teamsters, artificers, laborers, etc. We must recognize the plain fact that these men are no part of the firing line and consider them a service squad under the quartermaster-sergeant. In the field these men belong with or near the trains. In garrison the teamsters, artificers, laborers, etc., become available for whatever additions are needed to the post or camp by reason of the presence of troops, thus performing merely the work for which they are enlisted and paid.

It is absurd to believe that many men young in the service are allured by the privilege of retirement after thirty years' of arduous service, with constant changes of station, and no opportunity for the home life open to every civilian in humble circumstances. Quite apart from the doubtful physical abilities of soldiers of forty-five or fifty years of age, there is need of offering men an opportunity to leave the service with advantage earlier in life. This can be done with incalculable benefit to the army, as well as to the government service outside of the army and without the additional expenditure of a dollar. There are thousands of positions in the civil service for which soldiers with good character and habits and fifteen years' service are ideally fitted. Classifying the suitable positions in three general grades to coincide with the relative abilities and merits of three classes of enlisted men (1. non-commissioned officers who are reserve officers; 2. other non-commissioned officers; and 3. privates) of fifteen years' service, we should ask Congress to grant priority to such of these as receive the unqualified recommendation of their commanding officers and pass the usual civil service examination.

The Enlistment Contract. Two important changes in the enlistment contract are needed in the interest of both contracting parties. Many of our past experiences emphasize some im-

portant advantages of a probationary period of service for recruits. For additional reasons, which will appear later, the term of service of a recruit should be one year, at the end of which time he may choose between three years' active service or a similar period in the (non-active) reserves; in the latter case being subject to assignment either to regular or volunteer organizations at the outbreak of war. In other words, his contract should be for four years' service with the right of the soldier to exercise the option indicated above at the end of one year. It is my purpose to explain presently how that year should be devoted to the thorough and systematic training of the recruit. The other change in the contract is designed to assist the Government in keeping its army intact when the supreme emergency arrives. The contract must provide that in the event of war being declared by or against the United States during the period of the contract, that period shall extend two years from the date of declaration of war, if the contract were one which would otherwise terminate before the date so established. The contract should read about as follows: "I, * * * do hereby acknowledge to have voluntarily enlisted * * * for the period of four years, unless sooner discharged by proper authority, subject to the legal right of electing to serve in the United States Army Reserves after the expiration of one year from the date hereof; and if, during the third or fourth year of this enlistment, war be declared by or against the United States, I agree to serve for the period of two years from the date of such declaration of war." * * * The contract of re-enlisted men, both active and reserve, should be modified to suit the changed conditions; fixing the period at three years, omitting the option of election, providing that the Government may call on reserves for three weeks' maneuver service in each enlistment subsequent to the first, and providing for continued service in the event of war being declared during the second or third year of the enlistment.

The prospect of three years' reserve service is no deterrent to the man who contemplates enlistment in the army, and the right of the Government to extend his period of service in a seemingly remote contingency will hardly enter into his calculations. In either case he gets exactly what he wants; a chance to shoulder a musket when war comes. The effect upon enlistments of this form of contract would be almost precisely the same as if it obligated the man to one year's service without any additions, conditions or provisos whatsoever.

Regular Army Reserves. The peace establishment must have a certain output, that is, it must train and then discharge annually such a number of men that we can obtain a body of young reserves by prescribing a maximum age for reservists and yet be assured of the required number. Colonel Larned's statement that the 20,000 men now discharged annually (as alleged by him) would form a reserve body of 300,000 in thirty years is faultless arithmetic. However, an actuary would question the results, a military man may well doubt the efficiency of several hundred thousand of these, and philanthropists generally would cry out against the brutality of tearing venerable old men away from their grandchildren. There should be a limiting age, say, thirty-five years, at which enlisted reserves are dropped from the rolls. But there should be no limit to the number that may be enlisted, save only that the men must qualify for enlistment by honest and faithful service in the active army for a stated period. In view of the average age of men entering the service, the present period of active service, the age limit of reservists, and finally, ordinary casualities, it cannot be granted that men will average more than eight years' service as reservists. In England, where exists the only military system at all resembling ours, it is stated that of the reserves called upon for service in the Transvaal 99 per cent. actually reported. The more conservative estimate of 90 per cent. should be accepted in the United States where regiments are not localized and where the crime of desertion is so generally condoned by the people at large. Also allowance must be made for the few that would decline to contract for such service. It is reasonable to estimate that the army must have an annual "output" of more than 35,000 trained soldiers to guarantee the necessary 250,000 reserves for the arms and corps considered in the following table, based on the peace strength of units under present regulations :

	Peace Strength	Reserve Officers (estimated)	Strength on Mobilization	Reserves, including vacancies of Reserve Officers
Infantry	52,000	including 4000	219,340	171,240
Cavalry	19,000	" 1400	44,160	26,560
Field-Artillery	15,500	" 900	36,000	21,400
Coast Artillery	21,000	" 1050	45,000	25,050
Engineers	3,500	" 200	10,200	6,900
	111,000	7,550	354,600	251,150

Making due allowance for the many re-enlistments which must be ensured for the efficiency of the army, it is at once apparent that three years' service as a qualification for enlistment in the reserves will never create the body of reserves required to complete the first line. Herein lies the chief reason for the proposed four-year enlistment.

As briefly as possible I shall outline a method by means of which there may be more reserves enrolled than are actually needed by the first line. Those most recently separated from active service may then be mobilized with the first line and the remainder (to the number of which there should be no limit) may be assigned to the United States Volunteer organizations referred to presently in connection with the second line. For convenience, enlisted men serving under the four-year enlistment contract mentioned above may be designated "recruits," "soldiers," or "reserves"; "recruits" being such as have not completed the first year, and "soldiers" and "reserves" being those who, having completed the first year, have selected the active service and reserves respectively. Normally, let us say, active peace service carries the organizations of the mobile army to three kinds of stations: foreign stations, recruit posts and brigade or division posts. Foreign service is understood. A regiment, for example, on return from foreign service is assigned to a tour at one or more of the recruit posts and soon finds its ranks greatly reduced by expiration of enlistments. Recruits are always sent to the recruit posts, of which there are many: Forts Niagara, Thomas, Sheridan, Meade, Jefferson Barracks, etc. Officers and old soldiers of the regiments to which the recruits are assigned conduct a thorough course of instruction, which can be made systematic in each unit by grouping the recruits with reference to time of joining. Thus each unit within the regiment, or in the post, in turn disposes of its one-year men and begins anew with a group of the most recent arrivals at the post. Recruits who elect the reserves at the end of their year are so enrolled. Those who elect the active service become "soldiers" and are forwarded to meet the demands of organizations serving at brigade or division posts, including those preparing for foreign service. The regiment fills its own ranks with "soldiers" when it is about to leave, transfers the unfinished groups of "recruits" to its successor, and proceeds to a brigade or division post for the advanced training of its officers and men. Here it will remain, probably three

years, as a part of a large tactical unit, until it is again due for foreign service. In the coast artillery "recruits" are assigned to the various companies and take part in the company work, the necessary extra instruction being imparted by detailed instructors.

A study of this system in its application to coast artillery will demonstrate at once its feasibility. But only a third of the mobile army will be stationed at recruit posts, and it remains to be shown that the supply of "soldiers" for the other two-thirds will be sufficient. The one-third serving at recruit posts must be disregarded because an organization on this duty will have only such "soldiers" as remain with it after its return from foreign service, and the nature of the duty will reduce it to hardly more than its non-commissioned officers. The two-thirds serving elsewhere will have "soldiers" only and its peace strength is about 60,000. Increased pay, discontinuance of non-military work, opportunity of commissioned rank in the reserves, the presence of non-commissioned officers of undoubted judgment and ability, and the opportunity of admission to civil service employment, are factors which must materially increase the average length of service of "soldiers." When we consider how substantially the average is increased by a few men serving thirty years with a view to retirement, a larger number serving fifteen years with a view to civil service employment, and by the circumstance that men who become "soldiers" at all thereby evince a liking for the service after a probationary period, an average service of eight years seems to be a very reasonable estimate.* The annual supply of "soldiers" for the mobile army may be considered 8000, and making some allowance for the reserves who, after an interval of time, may enlist for active service, it is altogether reasonable to believe that a recruit force of 30,000 (which is *not* an addition to the peace strength except to an extent about equal to the number of non-commissioned officers of organizations at recruit posts) can be made to yield the required number, both of "soldiers" and "reserves." It must be admitted by any one of ordinary candor that under the Dick-Capron pay-bill, the provisions of which are correct in principle and may be accepted as the ultimate solution of the pay question, moderate rates of pay can be so fixed as to attract the de-

*It cannot be denied that it is possible to restore, partially at least, the conditions which existed prior to the Spanish-American War. An examination of a few old muster-rolls will show that in those days an organization, the men of which averaged only eight years' service, would have the unenviable distinction of being a "rooky outfit."

sired number of "recruits" from civil life and the desired number of "soldiers" from the ranks of the one-year men.

We know that men will not average more than twenty-four years at the end of their recruit year, making eleven years the period of eligibility for service with the reserves, and 242,000 the maximum number of reserves (ignoring casualties) obtainable from this source. To this we may add 40,000, a conservative estimate of the reserves obtainable from the 8000 "soldiers" annually separated from service with the mobile army, and 32,000 obtained by similar means from coast-artillery "recruits" and "soldiers." For many reasons this grand total of 314,000 reserves cannot actually be obtained. But a nominal monthly compensation and the absence of restraint or interference with the ordinary pursuits of the men fully assures the 250,000 men needed for the first line. Furthermore, it is not established that thirty-five years is the necessary maximum age for reservists. The extension of the age limit by a single year adds more than 30,000 eligibles. There is every indication that from surplus reserves can be formed the nuclei for many "United States" volunteer organizations.

Cavalry, artillery and the special corps would, in time, train a number of reserves exceeding their actual needs. Such of these as prove their inaptitude for mounted or special service must be allotted to the infantry which, being subjected to a greater degree of expansion of enlisted strength by the impracticability of maintaining stronger peace units, may not succeed in training the necessary number of reserves.

Line Officers for the Mobilized Army. Officers of each arm of the peace establishment must be promoted by seniority in the arm to the vacancies caused by the mobilization of duplicate organizations. Since the duplicate organizations will be mobilized at the station or camp of their respective originals, an examination will show that the regimental and company, troop or battery commanders, and the junior (reserve) officers will be immediately available for duty. Only a minority of the field-officers possibly may be transferred. An Executive order can be made legally sufficient for conferring the temporary higher rank and right to corresponding pay, and is in every way a safe and expeditious method.

To fill vacancies caused by the promotion of the officers of the peace establishment we must train and select reserve officers from our non-commissioned officers. This must be done care-

fully and in time of peace. The development of this policy will require a period of years, and there can be no doubt that in that time we shall acquire non-commissioned officers of superior training and abilities; men who will be far more efficient and deserving than any other class that can possibly be suggested. What other test do we desire? A regiment of cavalry, let us say, must have from fifty to sixty reserve officers. If these reserve officers are given some of the rights and privileges of warrant officers in the Navy and the opportunities which I have already mentioned, does anyone doubt that in due time the regiment will find excellent men? Let them be examined and selected periodically and carried as reserve lieutenants, with an increase of pay. A finer investment cannot be conceived. In any arm or corps these men will be competent to perform the practical field duties that fall to officers of their grade. It is obvious, however, that an exception must be made with the Medical Department, the reserve officers of which must be selected from civil life and afforded an opportunity to prepare for military service.

General, Staff and Regular Volunteer Officers. The mobilization of the first line necessitates the appointment of certain general and staff-officers, and the mobilization of the second line results in more appointments of the same kind, and further, the selection of officers for duty with volunteer organizations. It is needless to dwell on the topic of politics, favoritism and chance as factors in war-time appointments. It is quite sufficient to point out that by determining the positions which must be filled, selecting and revising the prospective appointees annually and announcing them in the Army Register, and by establishing by law the rule that at the outbreak of war the selections announced in the last Register must stand (barring misconduct or declination), we accomplish at once reforms of incalculable importance. We eliminate the untimely and demoralizing influence of politics, favoritism and chance; we help the Government to prepare for war; we help officers to prepare for their special duties in war; we ensure capable commanders and efficient staffs; we create a powerful incentive to earnest endeavor in time of peace; and we have at hand, at all times, an effective means of recognizing meritorious officers.

Paper Organizations. It may be said of duplicate organizations that it is not only feasible, but quite important that timely thought be given to the matter of non-commissioned officers

and plans for organization and equipment. The company, troop or battery officer and non-commissioned officers can be determined and assigned at any time, and, therefore, should be at all times. A roster of these should be established and revised periodically; a congenial task for our unemployed lieutenant-colonels who would, in the ordinary course of events, become the commanders of these organizations upon mobilization. Naturally also, they would supervise the selection of proposed non-commissioned officers. It would seem that privates so selected are entitled to additional pay.

Depletion of Ranks and Absentecism. A Missouri farmer who would look wise and wink if it were suggested that two loads of hay must certainly weigh exactly twice as much as one, would, nevertheless, stake his reputation on the assertion that two regiments are necessarily, in every respect, precisely twice as strong as one. So false is the ordinary American conception of military affairs, apparently. That the knowing farmer has influenced his country's military policy in the past is not alleged, though possibly it would be more charitable to charge certain unwise methods of recruiting to such splendid misinformation on the subject of dynamics, rather than to political commerce in patronage. The inferiority of a reinforcement of 50,000 men in hastily organized recruit regiments, as compared with the use of these same men to fill the depleted ranks of experienced and seasoned regiments, is so ridiculously apparent that a gullible person would be at a total loss to account for the singular American policy. And yet there is absolutely no hope whatsoever that the old evil will be absent in our next serious war, unless we have the forethought and determination to establish, in time of peace, a system or device so transparently designed and securely set up for the purpose of maintaining the full fighting strength of the existing units of our divisions that any war-time suggestion to abandon the carefully arranged plan would convey the evidences of politics and self-interest to the veriest fool.

The important and direct influence of properly conducted home depots on the continuing effectiveness of an army in the field has been so conclusively established and frequently illustrated in foreign armies that argument and demonstration are entirely superfluous. But it should be pointed out that in our country the system must be securely established by legislation in time of peace, or it never will exist in time of war. The

severest losses will occur in the mobile army. The plan must contemplate the conversion of recruit posts into home depots at the moment of mobilization, and the use of retired officers and men and such other officers and men of the organization as are temporarily unfit for field-duty. Furthermore, the home depot of an organization should be the recruit post at which it last served. This results in an even distribution of home depots among the recruit posts and localizes the organization, inasmuch as it will receive its reinforcements, in time of war, from the same district in which it drew most of its original strength and probably its reserves. A recruit post ordinarily garrisoned by a regiment of infantry, let us say, may become the home, or fourth-battalion station, for the six regiments formed from the three last stationed at the post. It may be said in passing that the entire machinery of the depot is imperfectly administered if recruits are not actually on the way to replace anticipated casualties before the casualties occur. A less thorough and efficient method of maintaining the fighting strength of the first line is neither scientific nor economical.

Absenteeism must be remedied. Vacancies must be declared by law to exist whenever officers are detached for service as staff or recruiting officers, attachés, aides, students and instructors at service or civilian educational institutions or with the militia. In war the principle must extend to the granting of temporary promotions to remedy the absence of those who hold temporary commissions as general, staff or regular volunteer officers.

Additional Facilities for Training. It has been indicated that somewhat more than a third of the peace establishment will be stationed at brigade or division posts. Six proposed brigade posts have already been selected by the War Department. In its entire history the Regular Army has always lacked the two essential facilities for training officers and men for operations against a modern army; large tactical units and extensive maneuver fields. The rotation which I have suggested gives every organization a liberal amount of service in the larger units, but there remains the grievance that our reservations, our maneuver fields, are absurdly small. With two large posts added to the six now planned by the War Department, there are already enough posts in the country for the peace establishment described in the preceding pages. But the reservations of the brigade or division posts should have an area greater than that

of any we now possess, Assinniboine not excepted. In view of the urgency of the case, the Government would do well to purchase adjoining tracts and, wherever desirable, preserve their agricultural productivity by obtaining tenants who agree to forego all claims for damages due to military exercises.

It seems, in every way desirable, that some such fraction as one-sixth of the proposed increase in the peace establishment be provided annually. Naturally, the recruit posts will be garrisoned first to ensure the necessary "soldiers" for the annual increase. When the total increase shall have been effected we shall have an organization which can retain its full effectiveness as a fighting machine, whether the force desired for a given emergency be but part of the 35,000 troops garrisoning the larger posts or the number obtainable by successive increments and expansions up to the maximum strength of the first line.

THE SECOND LINE.

Although it has been shown that we may ascertain, with a fair degree of accuracy, the force that an enemy may develop in any probable theater of war, and may conclude that a first line of superior training must be held in constant readiness to oppose that force, there is nothing at all definite on which we may base an estimate of the strength needed in the second line unless, indeed, we consider the 700,000 troops, more or less, said to be the total additional forces of all kinds, which each of the two recent belligerents in Manchuria succeeded in bringing into or near the theater of war. But we cannot foresee what disasters may befall or what the developments of war may be. We can only be sure that the second line must be chiefly organized militia, and such surplus reserves as we may have converted into volunteer organizations and filled up with recruits. But the task of preparing these troops for war will be much less difficult if a definite mark be set and, as will be seen presently, the fixing of a definite mark for peace-time development is really unavoidable. With favorable legislation and the proper application of federal appropriations, a second line of nearly 700,000 partially trained troops can be mobilized in camps of instruction to await the developments of war, or in time to augment the first line. This mark is distinctly in advance of the aggregate that can reasonably be expected from the same sources under our present policy, but is proposed, nevertheless, because,

taken in connection with the first line described in the preceding pages, it is possible of attainment, and that, too, with the assurance that the Government will be served by better volunteer troops than were mobilized in 1898, or even in 1899. Briefly, the plan provides (1) a force of State volunteers exactly equal, in organization and strength, to the mobile army of the first line; (2) a force of "United States" volunteers also exactly equal to the mobile army of the first line; and (3) additional "United States" volunteers as coast-artillery supports.

STATE TROOPS.

As matters now stand three serious obstacles to the successful use of State troops characterize the problem of federal development of the organized militia: First, the Government cannot influence the formation of the proper number of units of the different arms and corps, so as to ensure the even balance and military utility of the whole; second, it is not now within the power of the Government to prescribe and enforce regulations designed to ensure a satisfactory and uniform standard of efficiency; and lastly, there is no guarantee that the men instructed largely at the expense of the Government will be in ranks at muster-in. Until these obstacles have been removed without interfering with the peace-time functions and State control of the organized militia, it may be asserted with confidence that our plans for the use of such troops are needlessly defective.

Even Balance of the Organized Militia. To mobilize a State volunteer force equal to the mobile army of the first line requires one hundred and twenty-six infantry, forty-six cavalry and thirty-six field-artillery regiments. In addition, there are the special corps, which can only be considered equivalent to eighteen regiments, but which must be given due attention. This total of 226 regiments (special corps so included for brevity) is little more than the number now existing in the various States. A due proportion of the different arms and corps must be assured, and is obtained by the method of allotting funds. Having consideration for population and the existing organized militia, it is proposed that the War Department, by authority of Congress, make among the various States a permanent apportionment of the units which are to receive federal support; the total to be the balanced force already described. For each regiment of infantry apportioned to it and properly maintained a State

receives a specified sum annually. And so for each regiment of cavalry or other unit. If within a fixed time a State fails to provide a unit apportioned to it, the War Department should transfer to another State the privilege of receiving federal support for that unit. The preponderance of infantry in the organized militia is due to the inexpensive equipment of that arm. But it must certainly result that a State, having once provided the infantry apportioned to it, will convert its remaining infantry, or extend its system along the lines desired by the Government, rather than forfeit the privilege of sharing in national appropriations. Thus we see the reason for a definite mark; we see the necessity for limiting the number of units of each arm and corps which are to receive federal support for apportioning them to the various States and for allotting funds on the basis of units maintained.

The Standard of Organization and Efficiency. Organization, rules for the selection of officers and the enlistment of men, and all these other regulations which are properly the subject of legislation and which affect the military efficiency of State troops, must be uniform throughout the country. There must also be uniformity in the system and methods of instruction; matters of State administration. Uniformity in both respects is obtained by an exceedingly simple device. The authority which can put these suggestions into effect can also legislate for the District of Columbia. The laws governing the organized militia of the District of Columbia should include the desired provisions covering units of all arms and corps, although the formation of units of each kind may not actually be contemplated in the District; and furthermore, should provide that the system and methods of instruction are to be such as may be prescribed for the organized militia by the War Department. To share in the allotment of funds appropriated by Congress a State must enact identical military laws, exclusive of such provisions as establish civil exemptions or have no bearing on military uniformity and efficiency. This principle, with a different application, has already demonstrated its value, as will be seen in the uniformity of tactical organization resulting from the enactment of the Dick Bill.

Presence of Instructed Men at Muster-in. Several States are now paying members of the organized militia small sums for attendance at drills. To make these payments a national burden and to extend the feature to all States would open the way for

the creation of a body of militia reserves. Militia reserves may be described as men who are active members of the organized militia and who have obligated themselves to serve the National Government as volunteers in the time of war. It should not be necessary that all members of an organization must be militia reserves, but a repetition of the fiasco of 1898 must be avoided by providing that a Government-aided unit must contain a specified proportion of these reserves. The enlistment contract of the District of Columbia (and therefore of all States receiving federal aid) must admit the priority of the National Government's claim in time of war. There then remains with the State precisely the same control over the peace-time use and movements of its troops as it now has. At the outbreak of war regiments would retain their identity and officers and men their rank.

The three defects which have been mentioned as serious obstacles to the federal development of State troops are thus removed by the judicious use of funds appropriated by Congress, that is, by the creation of a body of militia reserves paid upon organization commanders' certificates of attendance at drills, and by the annual allotment of a sum for each unit maintained under the following conditions: (1) that the unit has been regularly apportioned to the State and is organized under laws similar to those enacted for the District of Columbia; (2) that the system and methods of instruction, as disclosed by inspections, are similar to those prescribed for the District of Columbia; and (3) that a certain proportion of its officers and men (for example, 90 per cent. and 75 per cent., respectively) are militia reserves.

It must be admitted that the efficiency of the organized militia is quite as much the concern of the nation as it is of the individual States, and that the provisions here suggested are not only a reasonable, but a logical extension of the federal influence inaugurated under the Dick Bill of five years ago. A government must discharge its duties more or less in the order of their importance, and the place which the organized militia must have in our national defense system makes its development a matter of vital national concern. Pension laws are a provision in every way worthy of a liberal and grateful people, however heavy the burden may be. In extenuation of the colossal dimensions of our pension list it is asserted that a sum of money is collected from the people at large and distributed among a de-

serving class of citizens, without loss of the circulating medium and without reducing the industrial productivity of the country. Precisely the same thing can be said of the expenditures here proposed for first line reserves and the support of organized militia. And it must be added that provisions for success in the next war are quite as important to the nation as substantial evidences of gratitude for services rendered in the last war.

UNITED STATES VOLUNTEERS.

The existence of a certain quantity of trained material is a compelling reason for again resorting to the use of "United States" volunteers. But conditions will permit (and therefore demand) peace-time selection and assignment of officers, and definite plans for the assignment of enlisted reserves and the procurement of recruits. It is sufficient to enumerate the sources which will supply the officers and men and to repeat that these sources will warrant the formation of the number of United States volunteer organizations proposed. For a regiment of infantry, cavalry or field-artillery: As to officers (1) selected from the Regular Army, as heretofore indicated, field-officers and regimental adjutant from the same arm, and regimental surgeon; (2) former officers of the organized militia transferred (after inquiry into efficiency) to the United States volunteers upon leaving the militia service, and retained for a fixed period or until a fixed age is reached; (3) former reserve officers (non-commissioned officers) of the Regular Army transferred on separation from active service and retained until a fixed age has been reached; and (4) vacancies that remain may be awarded to selected graduates of military schools. As to enlisted men (1) the surplus reserves mentioned in the discussion of reserve for the first line; and (2) recruits. A similar method, with the necessary modifications, will serve to create the special corps organizations.

COAST-ARTILLERY SUPPORTS.

While the coast-guard, when needed, must be an army in the field, the coast-artillery supports are small detachments, more or less permanently assigned to the various coast fortifications, and cannot be, at the same time, part of a field army. It would be a poor sort of economy indeed to destroy the care-

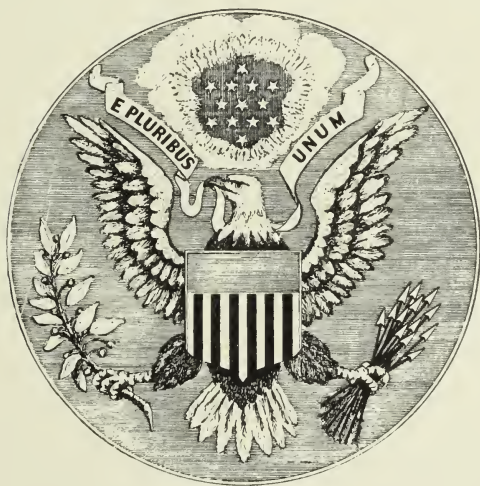
fully calculated even balance of either the first or second line by detaching the twenty infantry and four field-artillery regiments, which the detailed study of the Chief of Artillery discloses as the needs for that particular duty. And particularly so when we have at hand other excellent means for providing the necessary regiments. Officers and men of the coast-artillery are sufficiently familiar with infantry and field-artillery to warrant the conclusion that, with selected coast-artillery officers (as field-officers) and surplus coast-artillery reserves as the nucleus, the necessary twenty-four regiments, completed as described for United States volunteer regiments, could be formed into a very efficient coast-artillery support, capable, as well of intelligent assistance at the guns.

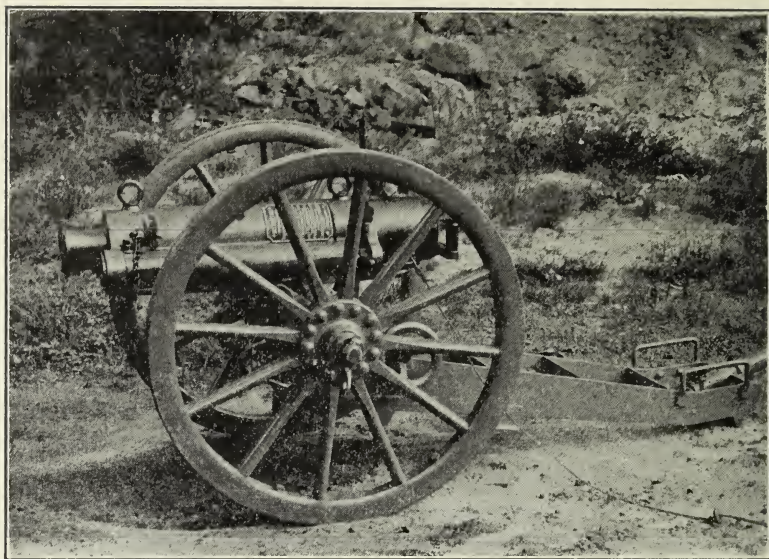
In conclusion, I must repeat that a powerful impetus to the development of an adequate organization for national defense must assuredly result from a searching inquiry into our needs and deficiencies by a commission such as the one I have suggested. The subject is too far-reaching, and any conceivable remedy is too extensive to be treated in a few pages except in the boldest outlines. Innumerable points of absorbing interest; the exact results obtained from the provisions which have been outlined, details of training, transport, staffs and promotions, the possibilities of war in various quarters, the folly of supposing that a navy alone can ever decisively terminate a war, the supreme importance of merchant marine development from a military aspect; all these and many other features which have a strong bearing on the main issue must, of necessity, be passed over with a regret which possibly the reader may not share. Through the whole inquiry there remains the conviction that the nation must work in all seriousness with complete divisions where hitherto it has courted Fate with fragmentary regiments; the scattered remnants of the very excellent Indian constabulary of twenty and thirty years ago. A dozen regiments of infantry, cavalry and field-artillery scattered the world over resembles an effective fighting division no more than the wandering (and outcast) descendants of Shem resemble what might have been, under happier circumstances, a powerful and respected nation in the Palestine. A division is a fiction, or a myth, until its regiments have camped together, marched together and maneuvered together under the intelligent direction of a division commander on a horse. A nation which asserts the right to guard a hemisphere, a nation which overruns the world with its commerce

and reckons its gains in billions, must look to its defenses and count its armies in divisions; for neither the billions nor the divisions are made in a fortnight.

The military policy deemed the best and most practicable by the proposed commission may differ from this in most of its essential features; yet I deny that it can be less extensive, and I deny most strenuously that the genius of America, the wealth of America, the valor of America, the grace of America before God, or any other factor whatsoever, can be injected into our military system as a promising substitute for the calculating, uncompromising preparedness which I hold to be the very essence of modern military science.

TEMPELHOF.

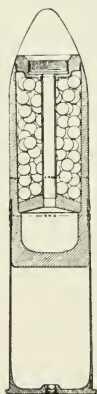




VICKERS-MAXIM 75 M/M MOUNTAIN-GUN.

MOUNTAIN BATTERY ORGANIZATION.

By MAJOR E. F. McGLACHLIN, 4TH FIELD ARTILLERY.



Shrapnel.

THE duty of mountain-artillery is to support the infantry in attack and defense in a terrain inaccessible to light-artillery. It is armed with a field-gun devised for mobility in close country generally, and in mountainous country particularly.

To accomplish these purposes, the mountain-gun equipment must be capable of carriage on pack animals. The nature of the cargo being such as it is, the gun and carriage packs must generally be top-loads. This limits their weights more strictly than a consideration of lower carried side-packs would do. They may hardly exceed 350 pounds for a well-organized and conditioned train of exceptionally good mules, and even this limit must be reduced by the weight of the pack harness, to determine the greatest practicable weight of a single load. Such restrictions necessitate the division into separate parts of any gun of considerable power, its carriage and the equipment. The number of parts is limited by mechanical difficulties that are complicated by the fact that the length of the load cannot be more than about

four feet six inches for work on hillsides, and by considerations of facility and celerity in handling the parts and of extension of the column by an increase in animals and men. The number of loads varies in different armies from three to five, depending upon the simplicity of construction, the largest number being the least necessary for a shielded quick fire with all facilities for indirect laying.

The number of parts and their weights being thus circumscribed, there follows a loss of power in a mountain-gun, compared with the light-artillery piece, such that the two natures are not, in general, suited to engagement side by side against a common objective.

The former is a low-powered gun with rather high trajectory, built with the avowed object of great mobility in difficult country; the latter is a higher-powered gun with a much flatter trajectory, of great mobility in open country; the former is a special type of artillery, the latter the predominant, or normal, type. In all the essential particulars of their service in firing, however, they are or may be made the same.

Following is a comparison of some of the ballistic elements of our mountain and field-guns:

RANGE, YARDS.	TERMINAL VELOCITY.			ANGLE OF FALL.						TIME OF FLIGHT.		
	Mountain.		Field.	Mountain.			Field.			Mountain.		Field.
	12.5 lbs.	18 lbs.	15 lbs.	12.5 lbs.	18 lbs.	15 lbs.	12.5 lbs.	18 lbs.	15 lbs.	12.5 lbs.	18 lbs.	15 lbs.
				° "	° "	° "		"	"			
0	920	750	1700	.....	.....	.....	.....	.....	.....	.....	.....	.....
100	916	745	1647	.....	21 29	6	.....	.33	.39	.....	.....	.18
1000	886	699	1270	3 42	5 24	1 27	.....	3.48	4.15	.....	.....	2.07
2000	855	657	1038	8 18	12 04	4 08	.....	7.36	8.76	.....	.....	4.75
3000	834	621	906	14 34	20 34	7 41	.....	11.65	14.21	.....	.....	7.83
4000	824	605	837	22 43	32 29	12 03	.....	16.45	21.79	.....	.....	11.25
5000	.....	.....	779	.....	.....	17 26	.....	.....	.....	.....	.....	15.12
6000	.....	.....	740	.....	.....	23 41	.....	.....	.....	.....	.....	19.36

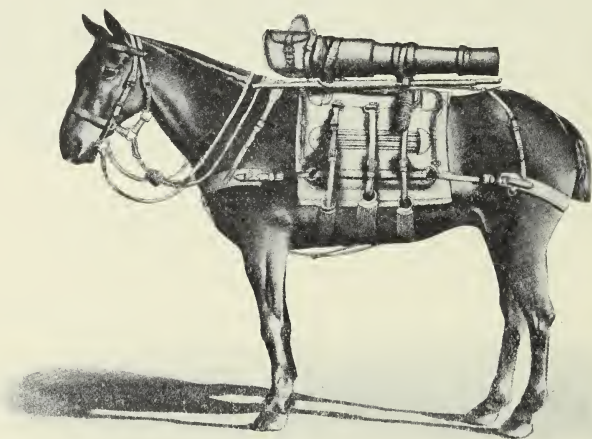
Mountain-artillery being a special artillery arm, any discussion of its organization in material, animals and men should be made with a view to the peculiar functions it is to discharge in a war campaign. Such an organization may be more easily fixed than its modification to suit peace conditions, for the latter involves questions of expediency, economy, policy and the reconciliation of differences of competent opinion.

Military units are tactical and administrative.

By a tactical unit is meant one that in its entirety is suitable to the accomplishment of a definite object on the battlefield; by an administrative unit, one including all the parts necessary to its interior economy—supply, discipline, records, etc.

The smallest unit of field-artillery that combines tactical and administrative functions is the battery. Tactical efficiency being its prime requisite should be the basis of the first computation of the strength of its components. The result must then be modified to obtain administrative efficiency without loss of tactical.

Notwithstanding the fact that in foreign armies the number of guns in a mountain-battery is commonly six,* it is believed



GUN LOAD.

that four guns make the most efficient unit. In part, this number is accepted as resulting from the best experience, observation and thought of our own field artillerists, which becomes especially pertinent in view of our approaching rearmament with a quick-firing, indirect-laying gun; but it also results from the facts that positions for more than four, or even as many, guns in line will be rarely found in typical mountain-artillery terrain; that the lack of such positions will frequently lead to an engage-

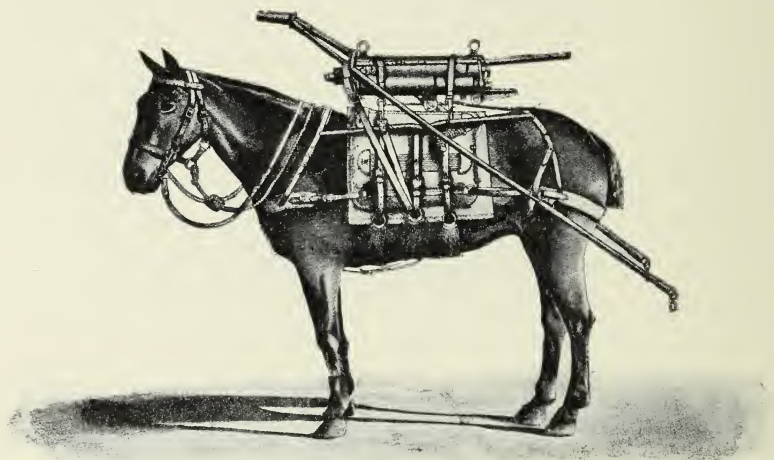
*From the latest sources at hand it appears that the French, English, Japanese, Swiss, Norwegian and Chilian mountain batteries have 6; the Russian, 8; and the Austro-Hungarian, 4 guns of the accelerated fire type, without long recoil or facilities for indirect laying. The number of rounds per gun with the battery seems to vary from 70 to 100 in time of peace.

ment of a battery by platoons or by pieces, and thus weaken tactical control; that a larger number makes a long, unwieldy column; that such number can take greater advantage of cover in movement; that it is usually in good proportion to small expeditions.

With our light artillery there are habitually carried in war 358 rounds of ammunition per gun with each battery. The transport of the same number with a mountain-battery would require at least thirty mules per gun. But the effective range of the mountain-gun being much less than that of the light gun, its field of fire being further limited by the character of its usual terrain, its objectives being frequently dispersed, rather than concentrated, and positions for a group of several guns being often unobtainable, its opportunities for firing, while perhaps as frequent as those of its sister arm, will be much more limited in time and in expenditure of ammunition. Besides, detachments from the battery to accompany small parties may be expected as the rule rather than the exception. All of these factors work to the reduction of the necessary supply. On the other hand the difficulties of replenishment are increased by the character of the terrain. But it is believed, in view of the considerations above, that 240 rounds per gun with the battery would be ample. Of this amount half should be immediately available at the guns or in their immediate vicinity in action, and the remainder within easy reach—perhaps, not more than 600 or 800 yards away. The mules provided for the transport of guns and of the immediately available ammunition must be under perfect control—the former, because the loss of one would disable the gun. A leader for each of the gun mules is necessary to the facile and competent handling of the gun in packing, unpacking and assembling. In addition, he is necessary, as is a leader for each ammunition mule that must be immediately available, because of narrowness of trails and maintenance of the rate of march, and to take advantage of cover. In downed timber or jungle and on steep hillsides a driver cannot lead more than one mule. But the other ammunition mules may be herded, and the ammunition replenished by drivers from the firing battery bringing back empty and leading forward full ammunition packs.

Frequently, if not usually, the guns will have to be advanced by men from the mules to their positions, sometimes to remain hidden, sometimes because the mules can carry their loads no farther. Under these conditions, the ammunition must also be

carried forward by hand. While it would be wasteful to provide personnel for the remote contingency of hardest possible service—the transport of the ammunition and gun-parts by manpower for long distances and over extraordinarily difficult ground*—normal service, which is physically exhausting, must be provided for. To conserve physical and nervous energy, the efficient service of the present gun in action demands a squad of six men, two of whom, by reason of their responsibilities and tactical functions of command, should hold rank. For the service of forty-eight rounds of ammunition actually with each gun, four cannoneers must be added to each squad. In immediate



CRADLE LOAD.

command of the drivers and cannoneers of each section thus composed must be a non-commissioned officer, responsible also for material and animals.

There remain to consider seventy-two rounds per gun in their close vicinity. These may satisfactorily be carried by four teams of six mules each, the teams of each gun-platoon being formed into an ammunition section. Each section requires a responsible chief, with an assistant chief of each team, on account of the normal detachment of fractions of his section either for supply of the guns to the front or replenishment of ammunition from the herded mules at the rear, and with two cannoneers for each team to care for and handle the loads.

*For example, slippery, stone-paved dikes; mangrove swamps; precipitous mountain sides, etc.

The loose ammunition mules, numbering forty, require a chief, a subchief and about eight men to load, unload and herd.

Efficient service of guns and ammunition in action thus fixes the least acceptable strength in enlisted men and animals, as follows:

DUTIES AND RANK.	Ser- geants.	Cor- porals.	Pri- vates.	Pack- Mules.
Chiefs of gun sections.....	4	.....	.....	.....
Chiefs of ammunition sections.....	2	.....	.....	.....
Chief of ammunition herd.....	1	.....	.....	.....
Gunners.....	.....	4	.....	.....
Ammunition corporals.....	.....	4	.....	.....
Chiefs of ammunition section teams.....	.....	1	.....	.....
Assistant chief of ammunition herd.....	.....	1	.....	.....
Gun servers.....	.....	.....	16	.....
Ammunition servers with guns.....	.....	.....	16	.....
Servers with ammunition sections.....	.....	.....	8	.....
Drivers.....	.....	.....	56	56
Herders.....	.....	.....	8	40
TOTAL.....	7	10	104	96

As pioneer work is likely to become necessary, tools must be carried, preferably a set for and with each gun.* This requires four packmules and four drivers, actual labor being performed by the cannoneers already provided.

The service of security and communication being especially difficult in the character of country considered, there should be at least three men thoroughly instructed and dependable, further details necessary being made from the general strength.

For communication with higher authority, there should be a non-commissioned officer—a man of discretion and judgment, trustworthy.

The operation of telephonic or other communication calls for four specialists under charge of another.

*It may seem that, if it is desirable to make each gun section more complete by the addition of pioneer tools, it would also be best to make it entirely independent by the assignment of stores and supply mules, especially in view of the assumption above that platoons and sections will frequently be detached. In such an organization, however, the sections could not march as units, except when detached, because of the great distances that would result between gun and gun in column; thus the other than armament mules would necessarily be removed from each section and united in a train in rear of the battery. In the organization described there is a saving of men and animals and in simplicity of administration, and there is more elasticity of supply by attachment to separated subunits of the number of stores, supply and ammunition mules corresponding to varying circumstances.

As messengers, orderlies and horse holders and to sound calls, there are three musicians necessary.

Exercises in maneuver demand a guidon.

To take immediate charge of replenishment of ammunition and replacement of casualties, a non-commissioned officer of high authority must be provided.

There must be an assistant to the captain in the performance of his duties of fire observance and control, computations and records and use of instruments—one of intelligence, capacity and experience.

These additions to the tactical requirements of efficiency of the individual guns are for the purpose of cementing their separate functions into a general high efficiency of the unit—the battery.

To the totals of the above table, therefore, there must be added: one sergeant (casualties, etc.), one sergeant (observer, etc.), one corporal (agent), one corporal (signal), one corporal (scout), three musicians, eleven privates (one guidon, four signal, two scouts, four drivers).

In all there will be, then:

9 Sergeants,
16 Corporals,
3 Musicians,
115 Privates,
100 Pack mules.

Turning now to questions of an executive or administrative nature, a first sergeant must assist the captain in the preservation of "the general good order, police and discipline of the battery"; a quartermaster-sergeant "in the general care and maintenance of" the property in hand; a stable-sergeant in the care of the animals and "the good order and police of the stables, picket lines, etc."

Three or four horseshoers, one or two saddlers and a carpenter can maintain in good repair the material in actual use, and should be supervised by a thoroughly competent mechanic, familiar with all the material, and especially with the gun, carriage and pack mechanisms.

Of cooks there must be three at least.

For the preparation of records, returns, requisitions, etc., two clerks are requisite. One of these should have the authority of rank.

But not all of the above need be added to the tactical en-

listed calculated, for the first sergeant can superintend ammunition supply and casualties, and the observer-sergeant can be a clerk. The other duties that have been described, however, cannot well be combined without loss of either tactical or administrative efficiency.

Revising the previous estimate, there will be :

- 1 First Sergeant,
- 1 Quartermaster sergeant,
- 1 Stable sergeant,
- 8 Sergeants,
- 16 Corporals,
- 1 Chief mechanic,
- 6 Mechanics,
- 3 Cooks,
- 3 Musicians,
- 116 Privates,

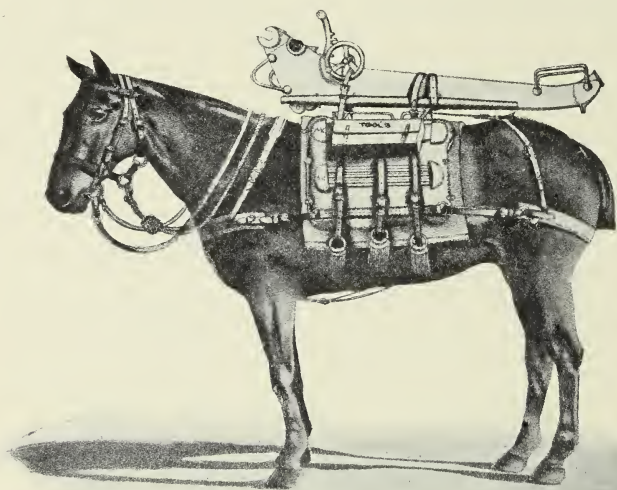
156 Enlisted in all.

If to the enlisted there be added a captain to command and to be responsible for the training and efficiency of the battery, a lieutenant for each of the three platoons to command them and to be responsible to the captain for "the efficiency of the men and the serviceable condition of the animals and material," and another for reconnaissance work, the personnel will be complete for the efficient tactical management of the battery in action and on the march for proper administrative control. But the question of supply involves not only these, but the personnel necessary for the supply service and the pack and saddle animals required by tactical, executive and supply considerations.

On the march grain is usually the only forage carried. As our allowance is nine pounds daily for the mule against twelve pounds for the horse, a supply pack-mule can carry a day's forage for about twenty-seven mules against 20 horses. This alone is strong ground for the substitution of saddle-mules for horses. The mule is also more sure-footed and therefore adapted for use in mountainous or other difficult country, with equal care withstands hardships and remains in serviceable condition longer than the horse, and, above all, is a potential cargo carrier. Under such conditions mere appearance should be given little weight. The horse, however, is more suited to the rider, whose duties must frequently carry him to a distance from the other animals. These are the considerations that have fixed the character of the saddle animals in the assignments below.

As to the personnel that should be mounted, opinions differ

widely, suggestions having been discussed that contemplated the mounting of the entire personnel. The argument usually advanced is that greater mobility of mountain artillery is necessary. Another is that the cannoneer cannot be expected to carry his kit through long marches and be in a condition of physical and nervous energy to perform his duties efficiently in action; still another that, as the cannoneers of other artillery branches are relieved of much fatigue by riding on the carriages, a comparison of their condition with that of the mountain cannoneer is detrimental to the mountain-artillery arm. The latter depends on the point of view and seems to be idle opinion, for there are



TRAIL LOAD.

features in each branch of the military service that appeal peculiarly to different personalities so that the advantages and discomforts of each are balanced. The second argument is canceled by the recent provision of pack animals to carry the kits, a wise step, doing away with the practice of overloading the armament mules. The first is deserving of consideration because it has been quite frequently offered and generally discussed, at least verbally and unofficially.

The characteristic of mobility involves one or more of the following capacities:

- (a) To march long distances;

(b) To march rapidly;

(c) To march in difficult terrain;

and, like the proverbial weak link of the chain, the least mobile necessary component of a mountain-artillery command measures the mobility of the unit.

With occasional days of rest, under ordinary conditions, the commercially laden mule may be expected to carry 250 pounds twenty to twenty-five miles daily at four and one-half to five miles per hour, without grain or hay, but with a fair supply of standing grasses. As, therefore, the mules cannot be tied to a picket line, a usually undesirable condition, from a military point of view, is imposed. In rough and mountainous country the rate of march is reduced, and the daily distance becomes ten to fifteen miles. To carry 350 pounds four miles hourly at twenty miles daily for thirty days continuously appears to be the limit. This applies to well-organized and seasoned pack-trains.*

Weight of Load	Maximum Hourly Travel	Miles per Day	Days Continuously
300 pounds	5 miles	75	1
300 pounds	5 miles	50	7
300 pounds	5 miles	25	30
300 pounds	5 miles	20	60
350 pounds	4 miles	20	30
400 pounds	4 miles	15	30

Our gun and carriage loads, including harness, are 306, 335, 336 and 337 pounds. All are irreducible and by bad practice may be increased instead of decreased, as the campaign advances by the surreptitious addition of canteens or haversacks or other small weights, and by tired drivers or cannoneers supporting themselves by parts of the harness. All, except one, are high top loads, and the trail is particularly unwieldy. The ammunition loads are 333 or 334 pounds, but are in the nature of side packs. Although the latter may be reduced from day to day, the saving of energy therefrom is approximately equalized by additional travel to resupply ammunition. So the weight of load is practically the same as that of the ordinary pack-mule last considered. The military packed mule carries a fixed load that cannot be subdivided, repacked and accommodated to the varying

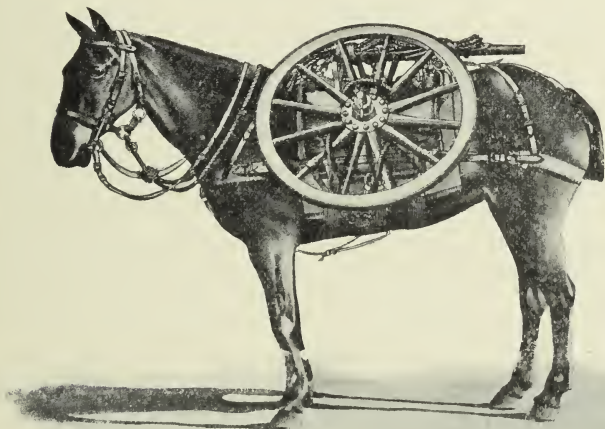
*The following is extracted from "Manual of Instruction in Pack Transportation" Packmaster H. W. Daly, United States Army, U. S. M. A. Press, 1901:

conditions of the animals at all readily, as may be the mixed cargo of a pack-train. His high riding, heavy, swaying pack is very exhausting and sore producing, and he will be made to accommodate his path to the ease of his leader. Mule for mule and weight for weight, conditions are imposed on the military mule from which the ordinary pack-mule is free. His capacity for distance and rate of march may therefore be taken as ordinarily limited to twenty miles daily at four miles per hour for short periods, even if it be assumed that he is selected with particular care and well fed.

While records of military experiences are not at hand sufficient for an independent deduction, the following indicates that the above estimate is none too low. Col. E. Z. Steever, Fourth Cavalry, as a result of experience in the southern islands of the Philippines, has spoken highly of the marching ability of mountain-artillery; another indorsement, he specifically states that it can accompany cavalry wherever the latter does not move faster than the walk; the rate of march of the battery with which he was familiar averaged closely to a mile in seventeen minutes over rough, narrow, muddy trails, often with high grass on either side, through the jungle, usually with some good stretches—wherever pioneer work was unnecessary—in fair and foul weather, over about 1900 miles quite evenly divided between twenty-four months; about half of the same battery, undermanned, marched over thirty miles in twenty-three hours, about one-third of the distance at night, was engaged once during the march and went into action for about five hours at its end; in eight days' marching of two undermanned batteries for 131 miles on roads, alternating in position in column daily, one with its personnel mounted, the other without, there was no appreciable difference in their rates, although the column, as a whole, moved a little faster with the mounted battery in front. The English place the rate of walk at four miles per hour; the French march three miles in fifty minutes on roads about twenty miles daily. So much for the distance and rate of march. As to its power of traversing difficult ground, an English writer has said, and experience has shown, that the artillery-packed mule can accompany infantry wherever the armed man can go without getting on his hands and knees. Even from that point the guns can follow more slowly, as their parts admit of handling by cargadores, boats or rafts. A French battery can climb about 1150 feet in fifty minutes. Wherever one reads, the direction is given

that hilly country reduces both the rate and length of march and that the mule must be allowed to proceed slowly at his own pace.

It may fairly be conceived from the foregoing that the military packed mule's capacity for marching is no greater than that of the well-trained dismounted soldier carrying only a light personal weapon, and a haversack and canteen with their proper contents. In its own proper field, the mobility of mountain artillery is very great; in open country its mobility is greater than that of infantry—always with the qualification of good organization and high training. To mount its personnel, generally, would actually reduce its power of maneuver in its typical rôle by enormously extending an already unwieldy column, would



WHEELS AND AXLE LOAD.

add to the present difficulties of flank protection, would demand more supplies and, therefore, men and animals to provide them, and, when the time arrived, as it must, for the saddle animals to be left behind, would call for the addition of horse holders and a detail to protect them. The additional animals would also add seriously to the camp labor of growing, watering, feeding and care of material.

It is not denied that the mounting of the personnel would enable a mountain battery to cover longer than ordinary marches at a greater speed, but it is confidently believed that neither distances nor rates could be maintained, except for a limited period. The necessity would be so exceptional and the injury to backs so

general and severe, that subsequent mobility would be sacrificed. To keep an organization horsed for such an emergency would be extravagant. When such a remote contingency arises as to require the presence of mountain-artillery with fast moving cavalry, it is conceivable that mounts can be temporarily attached. Its capacity is already equal to that of led horses or cavalry at the walk.

If the demands on the various units of the personnel were limited to the physical exertion of marching, all could be put on foot to shorten the column, reduce the weight of supplies and to obtain other advantages which have been mentioned. But certain duties require rapid travel from the command and return thereto; some responsibilities are great and others light; the drain on physique, mind and nerves continues for different periods and in different intensity after the day's march is over. Such considerations point to the wisdom of providing mounts for officers and a considerable number of the other personnel.

Six pack-mules will carry the mechanics' tools and stores. That they may be convenient to the battery, in case repairs become necessary, they should be herded with the ammunition train, but no additional herders need be provided because not more than three mechanics need march with the guns, and the others are available for herding.

So far no provision has been considered for the replacement of sick and injured, casualties, absent, detailed, etc. Assuming this at 10 per cent., sixteen men should be added. The total dismounted (see following table) will then be 118, to carry whose kits twelve mules should be attached.

Complete in all its details of men and animals, for all purposes of tactical employment, administration and supply, then the battery would be organized as follows:



TRAVELING POSITION.

	Officers.	Non-Com'd Officers.	Sergeants.	Corporals.	Other Enlisted.	Horses.	Saddle- Mules.	Pack- Mules.
THE FIRING BATTERY:								
Commanding battery.....	1					1		
Commanding platoons.....	3					3		
Reconnaissance.....	1					1		
Casualties and ammunition.....		1				1		
Observer.....			1			1		
Commanding sections.....			6				6	
Commanding teams (ammunition)...				8			8	
Signalers.....				1	4	3		
Scouts.....				1	2	3		
Agent.....				1		1		
Gunners.....				4			4	
Gun servers.....					16			
Ammunition servers.....					24			
Gun drivers.....					16			16
Ammunition drivers.....					40			40
Pioneer tool drivers.....					4			4
Guidon.....					1	1		
Musicians.....					3	3		
Chief mechanic.....					1		1	
Mechanics.....					3		3	
Reserve men.....					16			
THE TRAIN.								
<i>Ammunition train:</i>								
Commanding train.....			1				1	
Assistant.....				1			1	
Herders.....					8		8	40
Tools and stores.....								6
Mechanics.....					3		3	
Bell horse.....						1		
<i>Supply Train:</i>								
Packmaster.....			1				1	
Cargador.....				1			1	
Packers.....					10		10	
Medical supplies and veterinary stores.....								2
Records and kitchen.....								4
Kits.....								12
Officers' baggage.....								3
Rations.....								6
Forage.....								20
Bell horse.....						1		
ADMINISTRATIVE.								
Quartermaster sergeant.....		1					1	
Stable sergeant.....		1					1	
Clerk.....					1		1	
Cooks.....					3		3	
ATTACHED.								
Medical staff.....	1		1		1	3		

Assuming that two rations per man at four pounds per ration will be carried in the supply train, and that it will carry forage for two days for each saddle animal, and for two and one-half days for each pack-animal, there will be six 250-pound loads of rations and twenty 250-pound loads of grain.

For convenience, and because the personnel of a supply train in war should be soldiers for purposes of discipline, they have been included in the enlisted strength of the battery, with a saving of a farrier and blacksmith, and a cook and three pack-mules, over a regularly organized pack-train. They are so nearly alike, however, and circumstances are so likely to demand the attachment rather than the inclusion of a pack-train, that the organization may be stated in short, as follows :

5 Officers and one attached,
172 Enlisted men and two attached,
19 Horses and three attached,
41 Saddle mules,
106 Pack mules,
1 Pack train.

There will be carried four guns, about 960 rounds of ammunition, all the tools and stores necessary for ordinary repairs to material for six months and the tools required for simple engineering work.

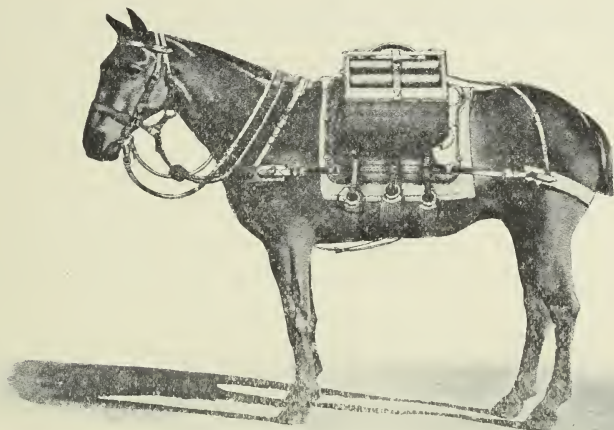
This organization on a trail limiting the formation to column of files will occupy more than an eighth of a mile less depth than though all the personnel were mounted.

To deduce from the above the correct organization for peace times it is assumed that as many complete elements should be maintained in a battery as are necessary to its prompt expansion into an efficient unit when the possibility of war appears. Independently of this it must be so large as to maintain the highest character of instruction of officers, non-commissioned officers, etc., in the performance of tactical and executive functions. Such a degree of instruction can be expected only from those whose enthusiasm is encouraged by responsibilities appropriate to their grades, developing their pride and resourcefulness. Keeping these premises in view, the following reductions appear to be the greatest permissible :

From the ammunition train omit all except three pack-mules for mechanics' tools and stores, and one mechanic and his mount ; transfer the remainder to the supply train.

From the firing battery omit the observer, signalers, scouts,

agent, whose places will be filled by detail from the remaining enlisted men of the same grades; omit eight ammunition mules and drivers; four drivers of pioneer mules, sixteen reserve men and one musician and his mount; omit the mounts of the observer, ammunition-team commanders and gunners; transfer the



AMMUNITION LOAD.

chief mechanic, mechanics, their mounts and the pioneer mules to the supply train.

For service with the supply train, add four privates and saddle mules to act with the mechanics as packers.

Omit the clerk's mount.

From the supply train omit one medical and veterinary supplies, two ration, two kit and nine forage mules. The battery will then consist of:

- 5 Officers,
- 3 Non-commissioned staff-officers,
- 6 Sergeants,
- 12 Corporals,
- 1 Chief mechanic (with the supply train),
- 4 Mechanics (with the supply train),
- 2 Musicians,
- 3 Cooks,
- 94 Privates (4 with the supply train),
- 16 Saddle horses,
- 22 Saddle mules (2 for packmaster and cargador),
- 48 Gun and ammunition pack mules,

- 1 Supply train consisting of
 - 1 Civilian packmaster,
 - 1 Civilian cargador,
 - the other personnel given above,
- 40 Pack mules,
- 1 Bell horse.

The four ration and eleven forage mules will carry 250-pound packs.

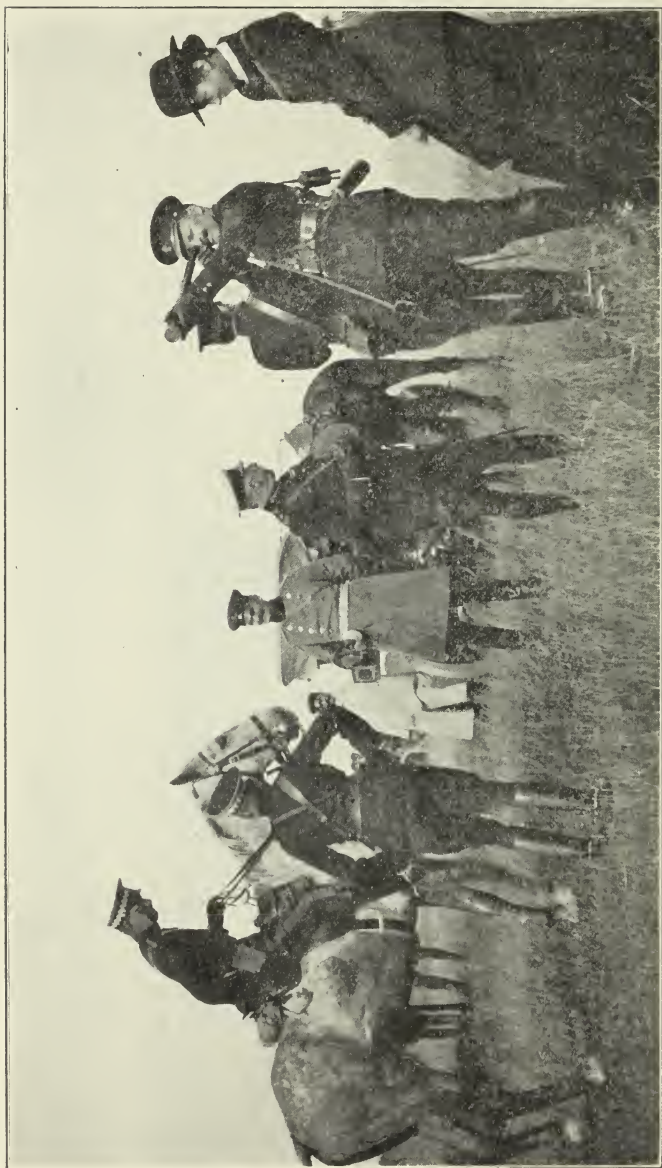
The net difference between this and the peace organization under General Orders No. 131, War Department, 1907, modified by an indorsement of September 6, 1907, is a saving of eight enlisted men, one horse and four pack-mules and an increase of five saddle mules. As at least eight men are necessary to take the places of those normally absent from duty, no argument in favor of reducing mountain-batteries below their present authorized strength should be seriously considered.

Now it will be observed that under the war strength proposed, there are 106 pack outfits to be cared for, besides forty-seven in the pack-train, and in peace forty-eight, besides forty in the supply train. In an ordinary pack-train there are fifty riggings. It is one of the duties of a packmaster, assisted by his cargador, and, to a less extent, by his packers, to keep his aparejos properly set up and to modify them to suit the varying condition of his mules and accommodate them to injuries. He is an expert packer. He is, in fact, usually the only man in the train who can perform the character of work described. He becomes expert by long and hard experience and is well paid in civil life. Correct fitting of the aparejo and correct subsequent alterations are an indispensable necessity to the efficiency of a pack-train or a mountain-battery. It is a simple matter to keep pack-mules in a generally healthy condition, but a very difficult one to maintain their backs in condition for hard service. The mule's weakest part is the surface of his body that comes in contact with his harness. In the short period of a soldier's service, he cannot be made an efficient soldier and at the same time carried beyond the efficiency of an ordinary packer, as a rule, though occasionally one develops here and there into a fairly efficient cargador. It becomes essential, therefore, to provide an expert to set up the riggings. The packmaster included in the above tables has his full measure of work provided both in war and peace, as in the former he has a complete train and in the latter he has four-fifths of a train and a changing person-

nel of soldiers, untrained as packers, to assist him, half of whom, the mechanics, will usually be unavailable in garrison service.

A packmaster and a cargador to assist him in the care of the 106 artillery packs in war, with no other duty to perform, and a packmaster alone to care for the forty-eight artillery packs in peace, with no other duty, should therefore be attached in addition to those given in the tables. Without these, so long as the aparejo pack is used, the measure of mobility of mountain-artillery will surely be much reduced below the figures given and its efficiency much impaired.





A CONFERENCE OF UMPIRES.
DUKE OF CONNAUGHT, CHIEF UMPIRE (IN CENTER).

THE ALDERSHOT COMMAND MANEUVERS FOR 1907

BY CAPTAIN D. W. C. FALLS, SEVENTH REGIMENT, N.G., N.Y.



THE summer season for 1907 was one of extensive field-work for the English Army at home. There were minor maneuvers in Scotland and Ireland, and much hard work at Salisbury Plain and Aldershot, in which large bodies of volunteers augmented the regular forces stationed there. The program for the year's work culminated with the operations in Buckinghamshire in September, which were considered the most important and for which much of the previous work was preparatory. The maneuver area covered a large part of the county of Buckingham, which had been previously gone over by an especially appointed detail of officers, and where any strong objection was made to the use of ground—such as private gardens, churchyards, etc.—it was marked by a sign “Out of Bounds,” or “Impassable.” Where this occurred, it of course, at times, handicapped some of the movements, but, as a rule, the landholders were very generous in giving permission to use their grounds. Only one landlord (or, strictly speaking, landlady) positively refused to allow an inch of her estate to be used, and a glance at the map will show this large “Prohibited Area.” It is needless to say that her decision was very unpopular, not only with the army, but with her neighbors, the press and the people throughout the county, who all regarded her action as most unpatriotic. Of course, provision was made to reimburse anyone for any damage that might be done, and a detail of officers accompanied each army to hear complaints, investigate losses and inspect claims as soon as they were reported.

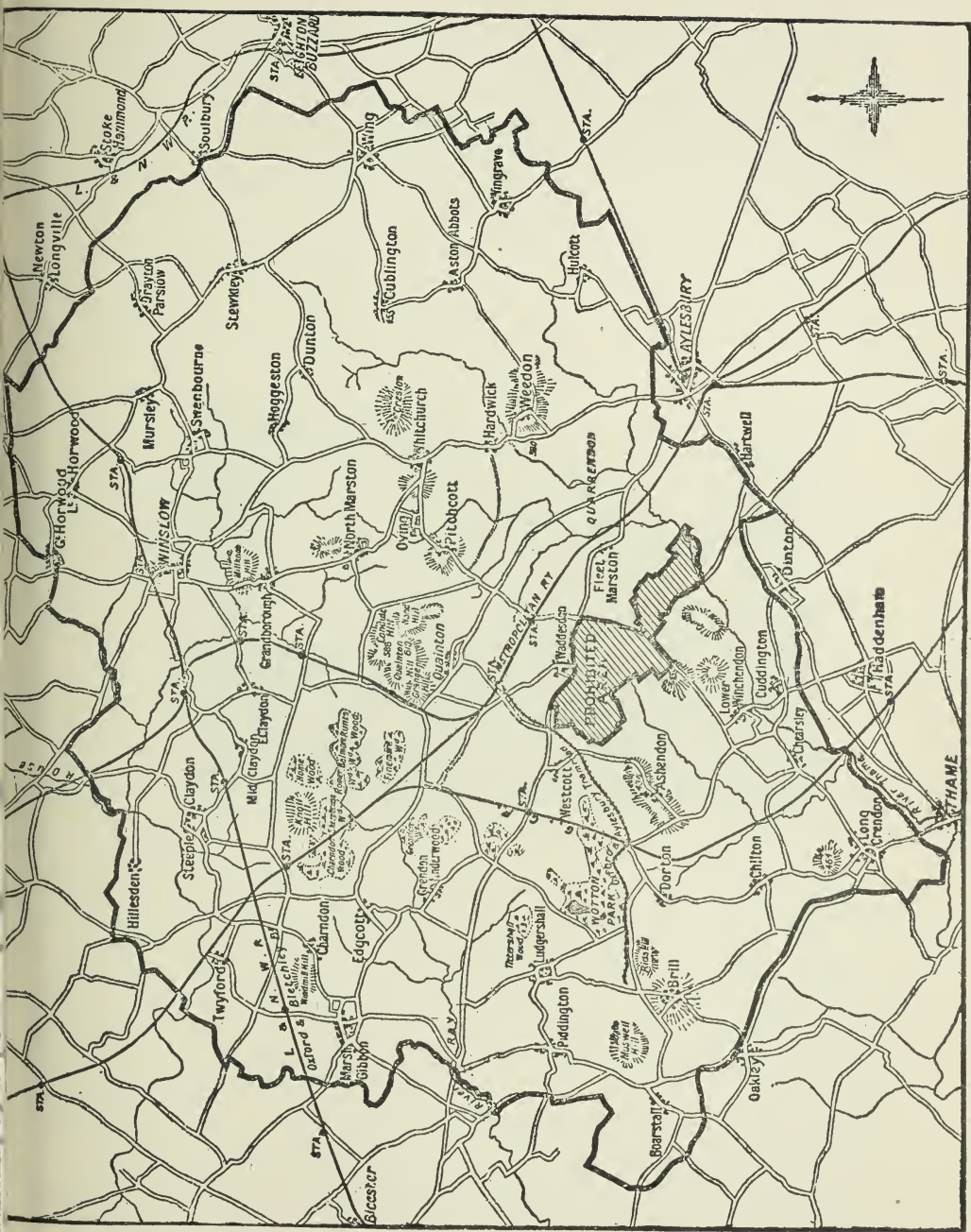
The scheme for the operations, as outlined by the War Office, was as follows: Two invading armies had landed on the coast of England and were endeavoring to join forces for a combined attack on London. One of these armies was only imaginary, and the other, known as the Blue Force, under Gen. Sir John French, was composed of the entire garrison of Alder-

The initial figure at top of page shows “foot-ball” trousers worn by some men at the maneuvers as an experiment for hot weather.

shot, reinforced by the Brigade of Guards from London, the whole forming a complete army corps. They were opposed by two skeleton armies of defense, known as the Red Force, or marked enemy, No. 1 and No. 2, under command of Col. H. Gough. These two forces combined were composed of a brigade of cavalry, three regiments (battalions, as they are called in England) of infantry and four batteries of artillery. All the troops engaged were regulars, except two squadrons of local Imperial Yeomanry (Bucks Hussars), who, on account of their knowledge of the country, were much in demand as orderlies, scouts and couriers. All troops, on both sides, wore the regulation field-service uniforms, the men of the Red Force being distinguished by a white cotton cloth band worn around their field-caps. Umpires and non-combatant officers were in blue uniform, the former with white-top caps and white bands on their right arms.

The operations began by what is called a "Staff Ride." The commanding officers of each force and of the larger subdivisions, accompanied by their respective staffs, special service-officers and orderlies, started from designated points and worked over the country through which their armies would pass to reach the maneuver area. The ground was scouted, mapped, and campsites located; communication was kept up by the local telephone and telegraph lines, and orders and reports sent and received exactly as if the divisions and brigades were on the march. At night the officers sought shelter in the nearest town or roadside inn. Of course if all this could have been done with the actual troops the experience would have been much more beneficial, but the English Parliament, not unlike our own Congress, does not always appropriate sufficient funds to carry out these military problems as those in authority would wish. Failing these appropriations for more than a week or ten days' work, a staff-ride seems to be an excellent form of instruction for those officers engaged in command or staff-work. The expense amounts to almost nothing, and all officers that I talked with on the subject seemed to be enthusiastic and to believe that they derived much benefit from the experience.

The officers of the Blue Army started from the coast, and passing through Aldershot picked up their actual force there about September 12th. The first of the army then started, and by rail and marching mobilized near Aylesbury, on the border of the maneuver area, on Sunday, the 15th. Much of the dis-



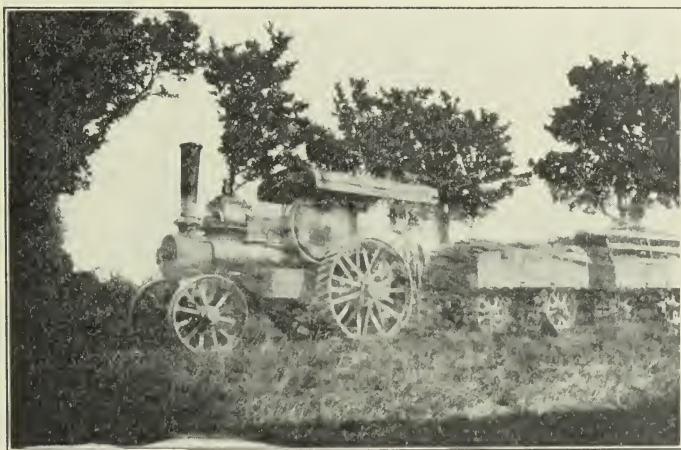
Scale of Miles

tance was covered on the march, but on Saturday the Blue commander-in-chief issued orders for the entraining of a large portion of his forces, to hurry them to the scene of action. The railway companies were required to provide trains at very short notice, and this gave the railways, as well as the troops, an intimation of what might be required in time of war. That the journey made by the troops was only of very short duration and was of no very great importance, the principal point being the entraining and detraining of the men, and loading and unloading of the baggage. The troops, on leaving Aldershot, were accompanied by their wagon-trains, as they carried with them a complete camping outfit. During the march the troops went into regular camp at the end of each day, but during the active maneuvers almost all the nights were spent in bivouac. The Army Service Corps was unable to furnish sufficient field transportation, and it was necessary to hire a certain number of wagons, horses and civilian drivers to complete the proper transport. The use of traction engines, also, was more extensively experimented with than ever before, and almost all the commissary stores and forage were thus transported.

While the Blue Force was approaching the maneuver area from the south, No. 1 Army of the Red Force (whose actual movements had also been preceded by a staff-ride) was moving in from the north. Its object was to prevent the advance of the invaders, and with this in view the commanding officer took a strong position, with his first line of defense (on the lookout for the enemy) on the ridge between Quainton Hill and Aston Abbots. Though the Reds had nearly their full strength in cavalry for the size of their supposed force, the rest of the army was skeleton. One gun in position represented a battery, and a squad of eight men, with a red flag, a double company of infantry. There were also a force of engineers, a telegraphs corps and a balloon detachment. Though he had previously had a look at the staff-ride for a day, the writer arrived at Aylesbury and attached himself to the Blue Force at this stage of the operations. While I was so fortunate as to have some inside information and an occasional tip as to what might happen, it was impossible to see it all, and, except for the general outline, I shall endeavor to confine myself to what I saw personally, and not attempt any description or criticism on the larger operations.

Only the general scheme had been given out, the commanding officers being left entirely to their own devices and resources to

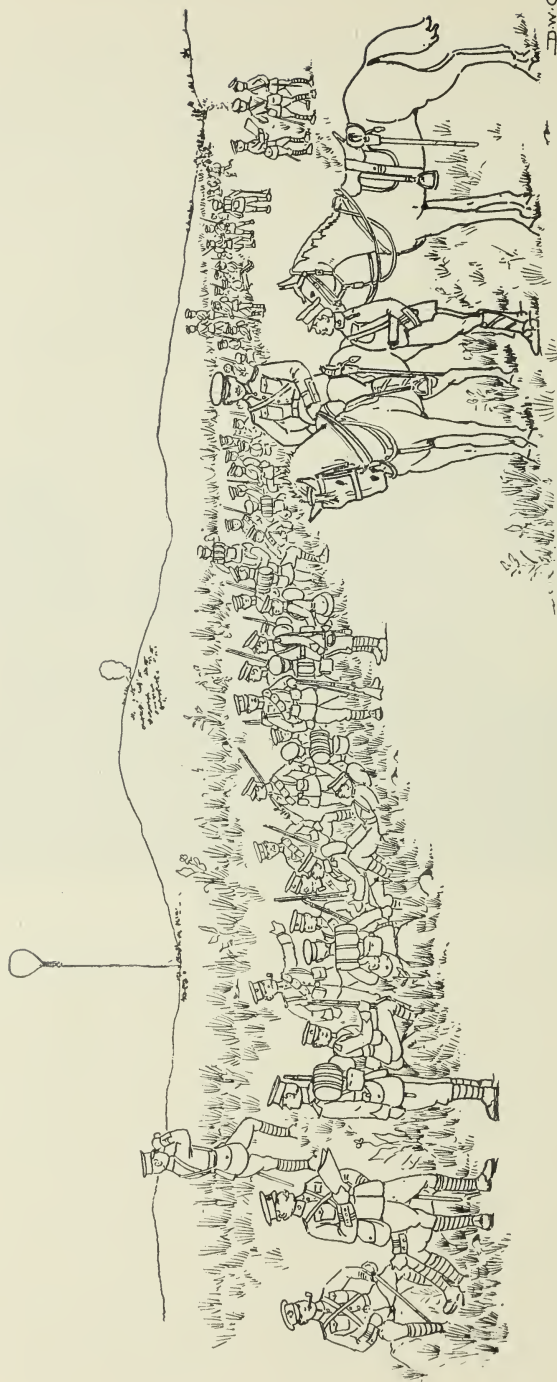
carry out the following problems: No. 1 Red Force was to prevent the advance of the Blues, and, if possible, hold them in check until No. 2 Red Force, which represented an army coming from the west of England, could reach the maneuver area and attack the invaders in the rear. The Blue Force's object was to out-maneuver the enemy in its front and either pass or drive it back, so as to effect a conjunction with the other supposed invading force. It was given three days to dispose of the first Red Force, and on Wednesday the Blue rear was to be attacked by the No. 2 Red Force, which had entered the maneuver area, near Thame, the day before. This, of course, would make the



TRACTION ENGINE.

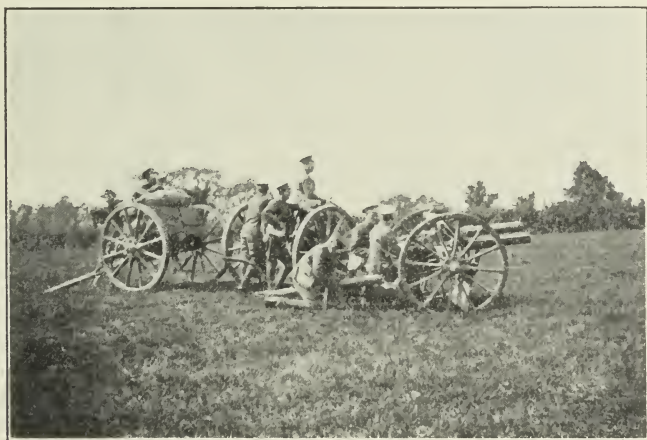
Blue Force face about to fight this new enemy, as well as to protect its wagon-train and supplies. If the No. 1 Red Force was disposed of in the first three days, so many more troops would be available for the new fighting line in Blue change of front. With this before them, the movements of the opposing forces were really "maneuvers," for most of the work done during the entire week was maneuvering for positions, both defensive and offensive. The advances were made carefully, as all knowledge of the plans of the opposing side had to be procured by scouting, balloons, interviewing the natives, and (unfortunately) the London newspapers.

The action developed with desperate slowness, and there was none of the spectacular effect that the writer has seen at the maneuvers of Continental armies. Along the six miles or so of



A HALT BY THE WAYSIDE.

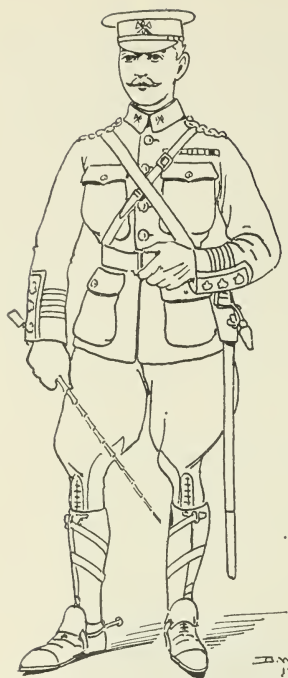
fighting line, one could see the occasional flash and hear the boom of a field-gun, which showed where the artillery were bombarding a position; then, after a considerable interval, the cracking of musketry-fire, mixed with the peculiar coughing sound of a Maxim gun in action, would be heard, but there was nothing visible. With a strong glass one could distinguish here and there, behind stacks of corn, hedgerows or clumps of trees, little brown dots, sometimes still and sometimes moving slowly forward under any protecting cover. It was a curious feeling to know that the whole countryside was full of armed men, that thousands were engaged in fighting a battle, and yet not to see twenty soldiers as far as the eye could reach. There were no



FIELD-ARTILLERY IN ACTION.

swarming lines of infantry, no solid columns hurrying forward on the roads, no inspiring bayonet charges with trumpets sounding and colors flying; in fact, in these days of long-range armament, it seemed about as near the "real thing" as you could get.

At last, from a balloon visible from all parts of the field, a signal was made discontinuing the operations for the day. It was nearly three o'clock in the afternoon, and the troops had been at it since dawn. It was really startling to see how the whole country became suddenly alive. Thousands of men formed up in long columns, endless lines of guns and wagons began to churn up the dust on the roads, and squadron after squadron of cavalry came trotting in from the front and flanks to the designated points where the armies were to bivouac for



CAVALRY OFFICER.

the night. The regimental wagon-trains joined their organizations, and preparations were at once made to give the men the first hot meal they had that day. At least the wagon-trains should have joined their organizations, but with troops moving rapidly forward, or the quick change of a position, which the exigencies of the moment made necessary, it was a difficult matter for the transport officers to at once locate their regiments. This also is what would probably happen under active service conditions.

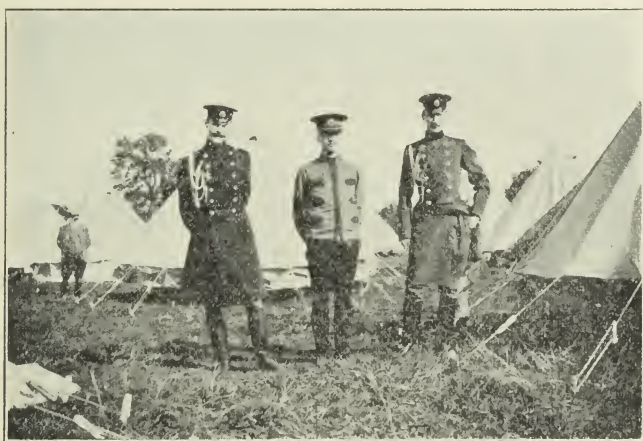
Moving slowly in a motor along the now crowded roads, we were the object of many inquiries. Had we seen the King's Royal Rifles? Was the Second Infantry Brigade on that road? Much information was forthcoming from the residents along the roadside, with whom word had been

left, when it was possible, as to the whereabouts of different organizations. Hot, dusty, but energetic staff-officers did yeoman service in giving directions; and one in particular was the object of our keenest admiration. Seated on his horse, at an intersection of three roads, he was coolly smoking a pipe, while he seemed to have the exact location of every corps at his finger-ends. "Straight ahead First Infantry Brigade." "First turn to the left West Surrey Regiment." "Too far forward Grenadier Guards. Go back to the first crossroad and you'll find them half a mile to the left," and so on, were his quick and concise directions.

Having seen the Blue Force located, we ran through the lines to see how the Red Force had been getting on. We found that it had fallen back a little from its first line of defense, but still held its main position, though the Blues had succeeded in advancing in force as far as Pitchott. A stay of some length in the Red territory brought the time after sundown, when we started to return to Aylesbury. It was growing dark as we passed through the lines, and we realized that the work was on again and the outposts alert, by a peremptory order to halt to be

recognized. Having established the fact that we were not Red motor scouts or spies, we were allowed to pass on. On the high ground back of the Aston Abbots, the engineers had installed a search-light, and its broad beam traveled up and down the whole line of the Red position. Except for these eyes of the army, we found the men sleeping peacefully around their bivouac fires.

Through the courtesy of friends at headquarters, we received information that the entire Red position would be attacked at dawn on Tuesday, as soon as there was light enough to see. This necessitated an early start. The high ground at Pitchcott seemed to be the best point from which to observe the operations, and here assembled the Duke of Connaught and his staff,



MILITARY ATTACHÉS.

RUSSIAN—CHINESE—RUSSIAN.

the senior umpires and the foreign military attachés. Among these was Colonel Ting, of the Chinese Army, and no one took a keener or more intelligent interest in what was going on. During the French maneuvers, in 1904, the writer was with the foreign attachés detailed there, when, for the first time, two officers of the new Chinese Army were sent to observe the work of European troops. Dressed in a semi-Chinese, semi-European uniform, unable to ride a horse and dependent entirely upon an interpreter, they did not impress anyone very much. Showing the advance of this wonderful nation, was the marked contrast of its representative three years later. In a well-fitting European, up-to-date uniform, speaking English perfectly, he never

seemed to lose an opportunity to ask questions, acquire information and to make copious notes and memoranda.

The advance was made as planned, but, like the day before, little was seen by the spectators. The Red Force held a very strong position, from which it seemed almost impossible for a force of the strength of that under the command of Sir John French to dislodge it. It was not driven out of its position, and late in the day delivered a successful counter attack that regained for it Quainton Hill. Early next morning, Wednesday, the Blue scouts to the south and west reported the approach of the No. 2 Red Force from that direction. A change of front was at once made by the Blues, who moved forward to meet their new en-



UMPIRES.

emy, leaving a small force in a strong defensive position to protect their rear and supplies from their old antagonists. The day was spent in maneuvering for position by both armies, with several small engagements, principally of outposts and patrols, but no decisive battle as the spectators had hoped for. Thursday was much the same, the latter part of the day being principally taken up by the umpires, in inspecting positions and getting information for their decisions. That afternoon, the active work ending, preparations began for the return of the troops to their home stations. This was again done by marching and train, some leaving that night and others Friday morning, and they were almost all back in their quarters by sunset on Sunday.

The work during these operations was considered most sat-

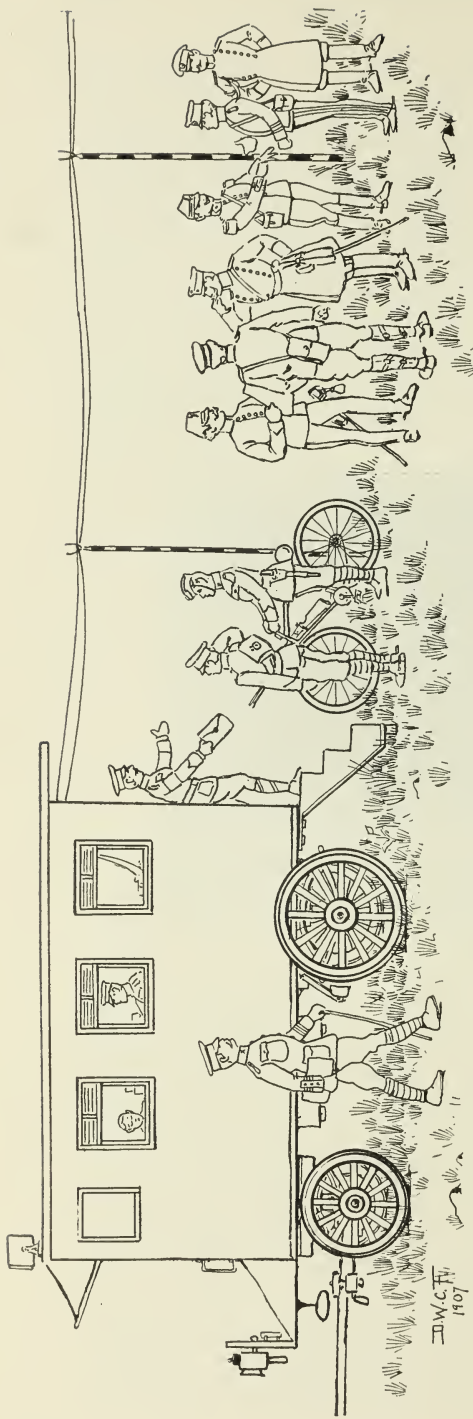
isfactory, though, as I said before, it was most disappointing from the spectator's standpoint. The principal work was really maneuvering, marching and the taking and evacuating of positions, rather than any attempt at a decisive engagement. As to the success achieved by the different forces in the different problems, I cannot give an opinion, as no decision had been given out by the umpires when I left England, shortly afterward. This was my third experience with the English Army during field operations, and I have also seen something of the maneuver work of the German, French and Russian forces, and taking everything into consideration, I consider the work just described as the best of its kind I have ever seen, and as near the real thing



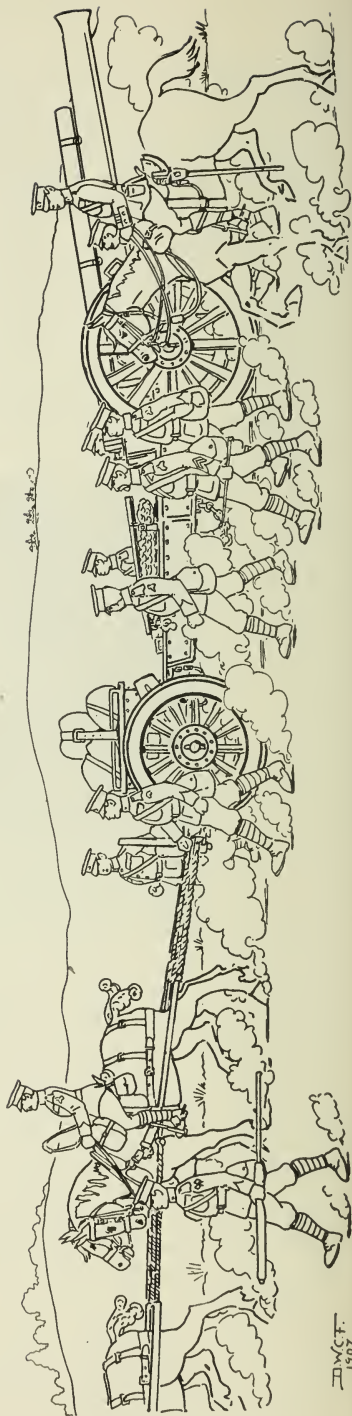
LIGHT TRANSPORT CART.

as it seemed possible to get in peaceful times, in a country where the farmer and taxpayer has a voice in the affairs of the nation. Had the commanders of the Blue and Red Forces had the benefit of the German or French maneuver laws, they possibly could have handled their forces to greater advantage, but the individual work of the officers and men would have been the same. They were in the finest physical condition and stood up to the ordeal splendidly. The men were not spared, and during the operations did the hardest kind of marching and field-work, both night and day. They seemed to take the keenest interest in everything and to show the greatest intelligence in scouting and outpost duty, on which so much depends on the individual work of the enlisted man.

Of course there were contretemps in regard to the wagon-trains, and some grumbling about the occasional wait for food. Tommy Atkins, like his American cousin, wants his meals hot



GENERAL FRENCH'S HEADQUARTER WAGON.

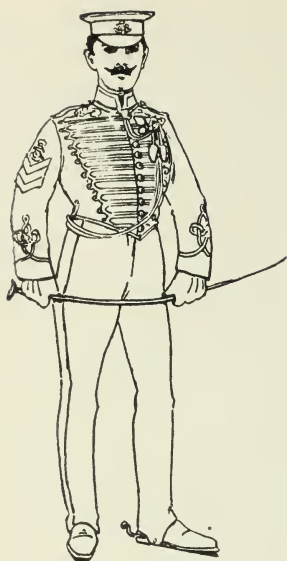


A 47 SIEGE-GUN ON THE MARCH.

and hearty, and has not yet solved the problem of subsisting for a long period on black bread and cold sausage, like the German, or the individual carrying of a cooking outfit, so that a meal can always be prepared with a little coffee and what may be picked up at the moment on the line of march, à la the army of France. The delays (the causes of which were explained earlier in this article) were only those which might have occurred in active service, and, in fact, under those conditions might have been even more complicated. During the week it was my privilege to have a long conversation on this subject with Mr. Bennett Burleigh, the famous war correspondent of the London *Daily Telegraph*. He has been through almost all the wars of recent years, including an extended stay in Manchuria, and from his personal observation he believes that the transport of the world is all entirely too heavy and cumbersome. The large wagons are all very well for some purposes, but the regimental field-outfits should be transported in light two-wheeled carts, with one horse, instead of a large wagon with four horses, or mules, to a company, four one-horse carts would carry more and be much easier to handle. In case of the breaking down of one, the others could still go forward without delay or loss of time, and should a draft animal be disabled the cart could be readily moved forward by a few men to positions impossible for a large army-transport wagon. The Japanese made use of this idea in employing jinrickishaws for light transportation, which they found much more useful, and easier to load and unload than pack animals. During the maneuvers several of the regiments had a single-horse, light two-wheeled cart for experimental purposes. The very heavy transportation was almost entirely done by traction engines, which did very effective work, but it was only the excellent roads and easy grades that made it so. This form of transportation would seem to be useless in a rough country with bad or no roads.

Before closing, I should like to insert a few observations from my note-books that might be of interest:

Uniforms.—In addition to the previous observations about the men, the thing that possibly impressed me most was the discipline in regard to dress. Uniforms to them seemed to mean uniformity, and every effort was made to keep it so. The field-service outfit of the British Army is so like our own in general appearance, that it would be difficult to distinguish the difference at a little distance. On closer observation, however, we



RECRUITING SERGEANT, R. H. A.

find that they take more pains in the fit, the material is far superior and much greater care is taken to preserve the uniform and keep it in condition, even in the field, than is observable with our service. Though on the march the men were allowed to take it as easy as possible, coats unbuttoned, or even off, and equipments carried in the easiest manner, on approaching a town coats were buttoned up, equipments adjusted and the men made to appear before the citizens in proper condition. The men undoubtedly seemed to take pride in observing the same ideas, and even while in bivouac should a man have to visit a neighboring town, or even house (though there were no orders to that effect), he would clean himself up as well as he could with the limited facilities at hand, to make as good an appearance as possible for the honor of the uniform and the service. The shoes worn by all enlisted men seemed exceedingly serviceable, being Blucher cut, with heavy soles and hob-nails. Those worn by the officers may be of lighter weight and better material, though many line officers prefer and wear the regulation shoe for field-service. Wrapped woolen puttees were worn by everyone, except staff and cavalry officers, who were equipped with leather puttees similar to our own. The wrapped puttee seems to be the ideal leg protection for a soldier. They have been in use now in the English service for years, and though many experiments have been made with other leggings and gaiters, nothing has ever been found as good. They are always neat looking, can be easily adjusted to the comfort of the wearer, and under ordinary conditions far outwear any other form of leg-covering,



FIELD-KIT.



LAYING WIRES AT A GALLOP.

— 1707 —
H. C. F. W. C. F.

thereby making them an extremely cheap article of equipment. An officer showed me a pair he was wearing, which had seen service in the Boer War, and except for being a little faded from repeated washings were as useful for field-work as they had ever been.

Signaling.—Signal work was splendidly done, and almost perfect communication seemed to be kept up between the different subdivisions; not only of the larger units, but between squads and individual men. Besides the regular signal corps, all companies and troops had a signal detail of about four men, and they were so distributed that by small flags they kept in close touch. Also, all officers, non-commissioned officers and



INFANTRY PASSING THROUGH A TOWN.

many of the men seemed perfectly familiar with the semaphore system. This made it very easy for a commanding officer to communicate with all parts of his line and advance almost at once, and saved an immense amount of running about by messengers and orderlies, or galloping of staff-officers. With the amount of ground now covered by a regiment, let alone a brigade or division, this seems to be a very necessary branch of work to cultivate and perfect. Field-telegraph, with both wire and wireless systems, and field-telephones were also extensively used.

Horses.—The army horses for all branches appeared to be of good stock and in excellent condition. They stood the strain well and seemed well up to the work they had been trained to do.



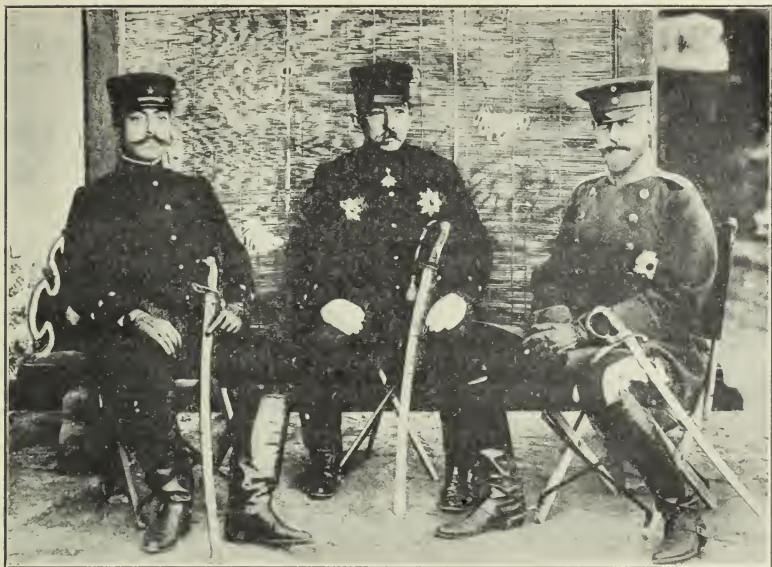
CANVAS WATERING TROUGH.

This was particularly noticeable in the transportation column, where the army-service horses were in fine condition when the hired transport teams began to show signs of the hard work. The small horses used by the mounted infantry seem very light for the purpose, while the large draft horses on the heavy guns (4.7.) looked too clumsy for any very active maneuvering. The six-horse teams on the field-guns were superb and as fit a lot as one would want to see.

In closing, let me once more try to impress upon my readers how near the real thing the work that I have endeavored to describe was. Such maneuvers are deadly dull for those in search of military spectacles, but they are rich in lessons for those who want to study the problems of warfare as it would be carried out to-day. Operations of this description, stripped of the excitement of blaring trumpets, waving flags and cheering charges make demands on the men taking part that only well-disciplined troops and long previous training will show good results when the emergency arrives. Would it not be well if our Army and National Guard could have more of this training, under similar service conditions, to fit them for what the future may require them to do?



MOUNTED INFANTRY PONY.



In center, Count Nodzu, commanding Fourth Army; on left, Prince Kanin; and on right, H. H. Karl von Hohenzollern.

CAVALRY OPERATIONS IN THE RUSSO-JAPANESE WAR.*

BY LIEUTENANT-COLONEL JOHN C. GRESHAM, FOURTEENTH CAVALRY.

RUSSIAN FORCES.



DURING these three months of inactivity both sides received considerable reinforcements.

October 25th, Alexieff was recalled and Kuropatkin was made supreme commander on land and sea.

November 4th, the Russian forces were divided in three armies.

Besides other troops, Kuropatkin received during the winter a brigade of cavalry from the Caucasus, a division of cavalry from the Don, and a brigade of cavalry from the Ural, which gave him 207 sotnias and squadrons.

During the same period the efficiency of the Trans-Siberian Railway was much increased, so that it was able to furnish sixteen daily trains, of which nine were military, and could transport 3000 men and 300 horses a day.

*Continued from March JOURNAL.

By January 15, 1905, the Russian Army stood as follows: Commander-in-Chief, Kuropatkin.

First Army.—General Linievitch: Second, Third and Fourth Siberian Corps with Rennenkampf's and Samsonoff's Cossack divisions.

Second Army.—General Grippenbergh: First Siberian Corps, Eighth and Tenth European Corps (later Sixteenth Corps), three brigades European Rifles, and two brigades of cavalry, one of the Caucasus and one of Orenburg.

Third Army.—General Kaulbars: Fifth and Sixth Siberian and First and Seventeenth European Corps.

JAPANESE FORCES.

On the side of the Japanese the Seventh and Eighth Divisions were sent to the theater of war, the former to Port Arthur, the latter to the active army. All units were also brought to war strength.

In the last days of January, 1905, the Third Army (Nogi), made disposable by the fall of Port Arthur, was sent to Liao-yang and gave Oyama an increase of 60,000 men.

The corps of occupation from Formosa was also called to Manchuria.

By January 15th the Russian and Japanese Armies each had some 300,000 men, and the former 1200 and the latter 900 guns.

We shall avail ourselves of the opportunity given by this lull to relate some interesting though not very eventful cavalry operations.

In a reconnaissance on October 30, 1904, by the Division of the Cossacks of the Don, whose object was to discover the Japanese position toward Paosentun and Futsiatchuantseu, the Nineteenth Regiment was sent against the latter and the Twenty-fourth Regiment against the former place, with orders to attack dismounted if it became necessary.

In the Nineteenth Regiment, the fourth, fifth and sixth sotnias dismounted to attack Futsiatchuantseu; the fourth was to attack in front, while the fifth and sixth turned the village on the east and south.

The first and third sotnias formed the mounted reserve of the regiment and the second acted as guard for the led horses.

The dismounted squadrons, in extended order and preceded by scouts, marched upon the village. At 1500 meters they opened fire in reply to the enemy, who were firing from the

pagoda, and thanks to the support of the artillery soon made themselves masters of the village. Scouts were at once sent to reconnoiter the villages Khaliuntai, Tutai and Lidiantun and also toward Paosentun to keep up communication with the Twenty-fourth Regiment.

At the same time the led horses and the mounted reserve drew near the village.

The artillery was also brought up, and had just taken a new position 500 meters west of the edge of the town so as to support the offensive movement of the Twenty-fourth Regiment on Paosentun and of the Nineteenth beyond Futsiatchuantseu in direction of Lidiantun. The north edge of this village, before which were fields of millet, was occupied by Japanese infantry and artillery. The dismounted sotnias continued in this direction. At this moment the third sotnia, still mounted, deployed as foragers to charge the part of the enemy that could be seen. It received a hot fire from the fields of millet, where the hostile intrenchments were concealed. The wire entanglements prevented the troopers from reaching the guns, but the charge might nevertheless have been successful had the captain, who was wounded and had two horses killed under him, been able to accompany it to the end.

The enemy's guns at Lidiantun now opened on Futsiatchuantseu and threw in confusion the horse-holders and the squadrons massed behind the village, when Lieutenant-Colonel Pakhomoff withdrew his squadrons and led horses in good order to a sheltered place.

General Telecheff, who commanded the Cossacks of the Don, having obtained enough information, now broke off the fight.

This slight affair, which was conducted on scientific principles, deserves to be remembered, and its last incident well discloses the vulnerable point of cavalry when fighting on foot.

The mounted combat of cavalry against cavalry was seen nowhere in this war if we except the accidental meeting of two squadrons, where the Japanese fled before the lances of the Cossacks.

It is quite conceivable that as the Japanese cavalry, badly mounted, poorly trained and small in number, never sought hostile contact, and as the Cossacks were specially fond of fighting on foot, it was only natural that every struggle should be decided by fire action.

On December 1st General Rennenkampf with a considerable

body of Cossacks started from the east on a reconnaissance in force to learn the extent and position of the Japanese right flank. He was at first successful, but elated by the defeat of a mixed body of the enemy's cavalry and infantry, he went too far forward, and meeting a superior force of the enemy had to retreat. He brought back 100 prisoners.

There had been other attempts to destroy the railway south of Liaoyang, but only by small parties of Cossacks—never more than a couple of sotnias—and their attempts had all failed, except that on January 1st an enterprising Russian officer's patrol had insinuated itself between Anshanchan and Haicheng, and destroyed quite a distance of Japanese railway.

THE RAID OF MISCHENCO.

At the beginning of January, Mischenco's cavalry corps, which covered the right flank of the Russian armies between the Liaoho and the Hunho, comprised some 7000 horsemen, including 1500 regulars, with twenty-eight guns and four Maxim machine-gun companies. There were also four battalions of mounted infantry as a support.

Port Arthur having capitulated, the Third Japanese Army was about to come by rail to Liaoyang. Mischenco got orders to oppose this movement, and started on his mission January 8, 1905. His objective was Yinkow, which was to be reached by passing around the hostile left flank and rear.

The idea underlying this raid was most excellent and conforms to the best cavalry tradition, which inculcates dash, enterprise and initiative; but the season was wholly unfavorable, and the intense cold, the bad, slippery, ice-bound roads, and above all, the immense train of 1500 vehicles, all conspired to destroy mobility, without which success was impossible.

This raid gave no useful results. The three columns, under Samsonoff, Abramhoff and Tyeleschoff, respectively, weighed down by the convoy, marched exceedingly slow. It is true that the Russians destroyed the railroad and the telegraph line at several places, even put to flight several Japanese convoys and came into contact with their screening forces, but this is all.

In general, the Russian cavalry did not, except on January 10th, encounter any serious obstacle; they traversed Newchwang without striking a blow, and arrived within sight of the railway station at Yinkow on the evening of January 12th.

After a short cannonade, which set fire to a few supply depots, several sotnias were dismounted to assault the railway station, but had to withdraw under the order of Mischenco, who was informed of the approach of important reinforcements for the enemy.

The three columns then retreated to join the main body of the Russian Army.

During this retreat they were surprised and attacked on the 14th by a Japanese detachment composed of all arms, but succeeded in continuing their retreat without further obstacle and re-entered the Russian lines on January 18th.

This raid cost the Russians seven officers killed and thirty-two wounded; seventy-one troopers killed and 257 wounded.

Such, in substance, was this famous raid.

The following remarks of General De Négrier are pertinent and interesting:

Here, then, was a raid, organized and conducted with equal energy and ability, but barren of any appreciable result. In the actual state of European cavalries none of them would have done better. It is impossible to impute its want of success to any lack of dash. It was simply due to the fact that the Russian cavalry did not possess the indispensable weapon, the howitzer, or light mortar, which alone can render a village untenable, or rapidly shatter any obstacle in its way. Cannon of small caliber, however rapid their fire, highly effective as they are against exposed troops, are powerless to reduce field works. The thirty-six guns placed in position in the batteries before the railway station at Yinkow had no artillery to face; there was absolutely nothing to prevent their being handled to their utmost advantage; and yet, in spite of this, they proved to be as ineffective as were General Samsonoff's guns in the attack on the village of Senuchen.

This point is now conclusively settled. It is no longer an open question. Cavalry must be provided with a number of howitzers, or light mortars, firing large bursting shells containing a heavy charge of high explosives. Recent improvements in gunnery construction render this quite feasible. In addition, cavalry should be armed with bayonets. In his decree of February 12, 1812, Napoleon himself ordered that "light cavalry shall be armed with a bayonet, the sheath of which shall be attached to the saber-belt, as it is in the equipment of the dragoons." When these deficiencies are made good, cavalry will not only be able to carry out a successful raid, but to capture the vital knots in a network of railways. It will have new and stronger wings to fly with, and will run no risk of finding itself hung up before a wretched cluster of mud-built hovels. The question of large caliber guns for cavalry is far from new. Long ago, even under the First Empire, generals commanding cavalry already demanded them.

While Mischenco was on his raid, *Rennenkampf's* cavalry was resting on the Russian left flank in the mountains. Small detachments of Cossacks patrolled northern Korea on the east coast, but obtained no appreciable results.

BATTLE OF SANDEPU.

At the end of January, 1905, Kuropatkin determined to seize the villages of Sandepu and Heikutai and use them as support for his right wing with view to further offensive movements.

Gripenberg was charged with the execution, and had at his disposal some 90,000 men, including Mischenco's cavalry corps and 350 guns.

On January 24th this force occupied a point of more than thirty kilometers on both banks of the Hunho. On the right bank to the west of the First Siberian Corps, facing south, was Mischenco's cavalry.

The First Siberian Corps, also facing south, had its left at Syfantai.

Mischenco's orders were to support this corps in its attack on Kuanlotaitseu and then cross the Hunho and observe the country south of the line Heikutai-Landunku, so as to take in flank any reinforcements the Japanese might bring up in this direction.

The army of Oku, which held the left of the Japanese line, comprised the Third, Fourth, Fifth and Eighth Divisions with several reserve brigades and an independent cavalry brigade, which last was on the right bank of the Hunho.

The Russians began the attack in the night between the 24th and 25th of January, and the First Siberian corps had no difficulty in occupying Kuanlotaitseu and Tutaitseu. After heavy losses, that resulted from the desperate resistance of its little garrison, Heikutai was also captured.

On the right of the Siberians it looked as if a great black mantle was benignly spread over the wide expanse of snow. This was due to the deployment of the Cossack divisions on Gripenberg's right, which had orders to push straight through to the Sinminting-Liaoyang road. This sudden debouching of huge Russian columns from beyond their left came as a surprise to the Japanese, and under favorable circumstances might have been disastrous.

As the sun rose through the gray winter atmosphere, the crackle and crash of musketry on the left of the Siberians told of the work of the Kharkvo and Odessa reservists, and on the far right, too, the cavalry were meeting with success. Information was received that Mischenco had captured a whole company of Japanese infantry.

The Japanese cavalry brigade was obliged to recross the Hunho, which Mischenco's cavalry also crossed in its turn at Mamikai under cover of Kossagovski's brigade. After reaching Landunku, Mischenco, who had been wounded, was forced to retreat to Sioerpu.

On the morning of January 26th the Eighth Japanese Division marched against Heikutai and fell upon the Second Brigade of the First Siberian Division; this in spite of the fact that its left flank was threatened by the Russian cavalry. The Second Brigade, however, was enabled to hold its ground for the present, and had it been strongly and promptly supported, great results were almost certain.

In spite of the most strenuous efforts on part of the Russians, Sandepu could not be taken, and on the night between the 28th and 29th of January the Russians retreated and abandoned with grief and reluctance the ground they had won at such heroic sacrifices. Sumapu, with its gallant defenders, stood like a stone wall between the Russians and Sandepu.

Kuropatkin, though he had powerful reserves at his disposal, thought himself justified in refusing to send reinforcements to Gripenberg, who, after repeated requests for them, finally got orders to retreat, at a moment when Sandepu was almost entirely surrounded and while Mischenco, who had been encouraged by successful charges on the 27th and 28th north of Landunku, was on the hostile left flank and rear.

This, the gravest crisis in Japanese affairs during the whole war, thus terminated to their advantage, and the arrival of Nogi enabled them to take the offensive.

Prisoners taken at Heikutai by the Russian cavalry had already proved the advent of the Third Japanese Army, and at this news "the heart of the mighty had become as the heart of a woman."

After the retreat Kuropatkin and Gripenberg engaged in mutual recriminations, in which the latter accused his commander-in-chief of leaving him without support. As a result, Gripenberg was relieved of his command and Bilderling placed at the head of the Second Army.

The Battle of Sandepu, which, besides still further depressing their spirit, cost the Russians 22 per cent. of those engaged, was the most useless as well as the most murderous of the war, and, in view of conditions at home, the Czar might well have cried with the ancient prophet, "abroad the sword bereaveth,

at home there is as death." Conditions at home beyond doubt had much to do with conditions in the field. A reign of terror had already begun in Russia, which grew in intensity from now. Between this period and June, 1907, more than 44,000 people have been executed or died a violent death in the empire for political reasons.

Both sides now, by a kind of tacit agreement, decided to wait for better weather, and by February 15th were ready to renew the struggle.

That there were early indications of the coming Japanese advance is evident. Take, for instance, the affair of the Hsinkai Bridge near Guntshuling on February 11th. Here, 160 miles north of Mukden, the Russian railway was attacked and cut by three squadrons of Japanese cavalry, which next day surrounded and killed or captured 300 Russians, who were protecting the line.

A few days later there was consternation in Harbin at the news that two regiments of Japanese cavalry were eight miles east of the city, and though a garrison of nine battalions with necessary artillery made attack improbable, the presence of these scouts so far behind the Russian right flank fully evinced the enterprising spirit of the enemy, and should have warned Kuropatkin of the danger threatening his right.

This raid, which reminds one of the Southern cavalry enterprises during the American Civil War, was a splendid piece of work. Space will not permit of giving it the attention it deserves, but it was a sure indication that some movement was on foot.

The Japanese staff knew the Russians well, and understood that if three squadrons arrived unexpectedly on the railway communications, their numbers would be exaggerated out of all proportion, and that in the general dismay felt for the possible destruction of the railway, which was the only artery for supplying the gigantic force collected at Mukden, any menace to its safety would be certain to cause the withdrawal of Mischenco's Cossacks to clear up the situation on the line of communications. And there seems no doubt that this maneuver had the desired result, for, as will be subsequently shown, Nogi arrived at Sin-minting practically unopposed.

BATTLE OF MUKDEN.

About the middle of February, 1905, Oyama decided to take the offensive. His own effectives were complete, while his ad-

versary had not received all his reinforcements. A rise in temperature had also made the weather favorable.

THE RUSSIAN ARMY.

Kuropatkin had received all his reinforcements except the Fourth Corps, which was detained west of the Baikal by the obstruction of the railway. His entire force amounted to a little over 300,000 men, including 16,000 cavalry with 1200 field and mountain guns, 250 heavy and eighty-eight machine guns. His forces were divided in three armies and there had been some changes in composition as well as in commanders.

The front occupied was nearly eighty kilometers, and the armies were distributed from right to left as follows:

- | | |
|-------------------------------------|--|
| Second Army
(General Kaulbars). | { Mischenco's cavalry corps, consisting of the Ural-Transbaikal Cossack division and the brigade of the Caucasus, reinforced by an infantry brigade at Syfantai and covering the right flank of the army. Mischenco, wounded at Sandepu, had been replaced by Rennenkampf, whose old place was now filled by General Alexieff.
A rifle corps consisting of the First, Second and Fifth Brigades, between Syfantai and Tchanchan.
The Eighth and Tenth Corps east of Tchanchan and extending to Paiuntchuang.
The First Siberian Corps in reserve behind the army at the disposal of the commander-in-chief. |
| Third Army
(General Bilderling). | { Fifth Siberian Corps north of Daliantun connecting with the Tenth Corps.
Seventeenth Corps north of the line Lingsipulamuntun.
Sixth Siberian Corps north of Shahupu, the Seventy-second Division in reserve at the disposal of the commander-in-chief. |
| First Army
(General Linievitch). | { First European Corps, which held with strong advanced posts the line: the Putiloff and Novgorod hills, Liutsientun, with its principal line of resistance north of the Shaho (the 146th Regiment of the Thirty-seventh Division in reserve at the disposal of the commander-in-chief).
Fourth Siberian Corps on the heights of Erdagu.
Second Siberian Corps on the line Liutchenhutun-Kandolisan.
Third Siberian Corps from Kandolisan to the pass of Kaotuling connecting with the division of Siberian Rifles. |

Alexieff, with the mixed corps formerly commanded by Renenkampf, covered the extreme left flank of the army, and was at Tsinkocheng with advanced posts at Sueitun and in the upper valley of the Tsinuao.

There was a detachment of Cossacks and light artillery under Colonel Madritoff at Tunghoasien, which held by advanced posts the passes leading into the upper valley of the Sutseho.

The Sixteenth Corps formed a general reserve at Mukden, and detached a brigade with several regiments of Cossacks under General Burger to protect the line of communications.

JAPANESE ARMY.

The Japanese forces numbered about 350,000 men, including 10,000 cavalry, with 900 field-guns, 170 heavy guns and 200 machine guns. Note the increase of cavalry.

A fifth army, called the Army of the Yalu, under General Kawamura, had been formed of a reserve division and of the Eleventh Division taken from the Third Army, and on arrival of the Seventh and Eighth Divisions, the composition of the First, Second, Third and Fourth Armies had been modified.

The five armies were constituted as follows:

First Army (Kuroki).	{	Guard. Second and Twelfth Divisions. Three reserve brigades.
Second Army (Oku).	{	Fourth, Fifth and Eighth Divisions. Corps of Formosa. Two reserve brigades. First Brigade of Independent Cavalry.
Third Army (Nogi).	{	First, Seventh and Ninth Divisions. One reserve brigade. Second Brigade of Independent Cavalry. One brigade of independent artillery.
Fourth Army (Nodzu).	{	Sixth and Tenth Divisions. One reserve division. Three reserve brigades. One brigade of independent artillery.
Fifth Army (Kawamura).	{	Eleventh Division. One reserve division.

The reserve brigades were really divisions, and had a strength far greater than a normal brigade.

The Fourth Army was in the center facing north astride the railroad. To each division and reserve brigade was, of course, attached the usual force of cavalry, as already explained.

On the left the Second Army extended as far as Sandepu.

On the extreme right the Fifth Army confronted the troops of Alexieff.

The general reserve was formed of the Third Army near Liaoyang and of the Third Division and the three reserve brigades available to the north of Yentai.

Each army of the first line had also a reserve of its own.

The Japanese as well as the Russian positions were fortified and protected in front by accessory works.

The dispositions of the Japanese were very judicious: Oyama had reinforced his center with artillery, placed all his cavalry on the left on ground favorable to its action, and kept in hand a strong reserve. He was prepared to meet an attack of the Russians wherever it might be made, and to take the offensive by his left if opportunity offered.

Kuropatkin, though he took excellent measures to protect his front and left flank, scattered his cavalry and kept an insufficient reserve. He also left to each of his corps commanders the command of the heavy artillery in his own section of the line, so that a part of this artillery was rendered useless in the battle.

Kuropatkin's plan was to attack by his right so as to turn the hostile left and drive it to the east.

The 25th of February, 1905, was the day he selected, and the different corps had been assigned their objectives, when the Japanese themselves suddenly assumed the offensive on February 20th and shattered all the plans of the Russian commander.

The battle assumed three phases or periods:

1. From February 20th to March 1st. The First and Fifth Japanese Armies attacked the Russian left. The artillery cannonaded the center, and the Third Army advanced north and gained contact.

2. From the 2d to the 7th of March. The Third Army with the Second executed an enveloping movement, and the Russian right changed front. The Fifth, First and Fourth Japanese Armies made a vigorous frontal attack.

3. From the 8th to the 11th of March. The First and Third Russian Armies evacuated the line of the Shaho, and the Fifth, First and Fourth Japanese Armies pursued. Indecisive combats west of Mukden and general retreat of the Russians.

On the first day of the battle two squadrons of Japanese cavalry cut the railway far away to the north. The actual cutting of the rail had but little effect, but fear for his communications induced Kuropatkin to send a brigade of infantry of the Sixteenth Corps northward, and to retain a large body of cavalry that might have been usefully employed in the line of battle. The right time for the enterprise was taken; that is, just when the battle began.

Moreover, from important incidents in the Battle of Sandepu, Kuropatkin had received an impression, which was wholly false, that the Japanese had a disinclination, perhaps an inaptitude, for fighting in the level country, and a further series of events seems to have confirmed him in this error.

Till Sandepu, he had to deal with only three armies, those of Kuroki, Oku and Nodzu. He now had on his hands not only Nogi's army but that of Kawamura. The composition, place of landing, line of march and even the existence itself of this Fifth Army had been kept profoundly secret. The Japanese, however, in order to strengthen the deception, had prompted the Tokyo press to announce that Kawamura would operate east of Mukden; the Eleventh Division had left the Third Army January 22d and gone under General Sakai to join Kawamura; Kuropatkin also thought that Grippenbergs's turning movement at Sandepu on the hostile left would certainly bring him in contact with Nogi if his army were in the west; but though the Russian advance troops had pushed fifteen miles west of Liaoyang, they met only the troops of Oku. The Russian commander-in-chief, thus made to believe that Nogi was in the east, shifted his center of gravity in that direction.

Briefly, Oyama had Kuroki, Nodzu and Oku strike in front, Kawamura threaten strongly the hostile left by Tita on Tieling, and when the full effects of these operations had been realized, Nogi, hitherto hidden behind Oku, was to envelop the hostile right, go to Sinminting and seize the terminus of the Kupangzu Railway. The Second Army was to co-operate with the Third in the second phase of the battle, as above outlined.

The inefficiency or the bad management of the Russian cavalry, or both, are strongly shown at Mukden; for the terrain in the west, which was the scene of the decisive blow administered by Oyama, is admirably suited to the action of that arm.

Nogi's march fully met the conditions of secrecy and celerity which, Napoleon declares, are essential to success in all military

operations. After crossing the Hunho on February 27th, the conduct of the Japanese general is a model of rapidity and precision, and the care with which he covered his front and left flank with his cavalry and mixed parties—the way he kept his cavalry far ahead—his manner of contracting his front on nearing the enemy—all deserve careful study.

His columns marched in echelon by the left behind the screen of the cavalry; on March 3d he was able to form attack, and on the 4th the hostile right was virtually defeated. Only on March 7th did Kuropatkin realize that the troops pressing around his right were more than strong detachments; on March 8th his resistance north of the Hunho began to grow faint; on the morning of the 9th his enemies reached Saintaitse, their cavalry destroyed the line north of Mukden, and his army was in full retreat.

The pursuit, which, properly speaking, did not begin till March 11th, was entrusted to Nogi, who, besides his own army, was given the Second and Twelfth Divisions. It scarcely amounted to a pursuit, for besides its tardy start and its slow progress, the lack of cavalry deprived Nogi of any hope of great results before his enemy could escape through the defile of Tieling.

The Japanese Government during this war, and especially here, was so strongly convinced of the immense value of cavalry, that it has decided to raise it to the unusual proportion of eight divisions to sixteen divisions of infantry.

Here it was that Majors Naganuma and Sasagawa each with 150 picked men and seven days' rice made their dashing raid to the north, cut the railway between Mukden and Harbin in two places, struck terror into the Russian Army, caused its commander to make still further detachment from his hard pressed forces, escaped all efforts of the Cossacks to capture them, and returned safely about the middle of March.

It will be instructive to study this battle somewhat in detail.

At the commencement of the battle the Russian cavalry was scattered in three parts. In the plain at Sinminting, twenty-eight miles west of Mukden, were the Fifty-first and Fifty-second Regiments of Dragoons. In the mountains to the east, toward Tsiangchang and Saimatse, were the Siberian Division and two regiments of the Transbaikals Cossacks. Farther away toward the north were the divisions of the Don and a regiment of Ussuri Cossacks. These last forces had started on February 28th in pur-

suit of bands who had endeavored to cut the railway north of Tieling. The rest of the disposable cavalry, a part of the Transbaikial Cossacks, four regiments of dragoons of the Maritime province, the Cossacks of the Amur, and a regiment of Orenburg maintained communication between the various army corps and furnished escorts. In all, there were some 16,000 cavalry split into a number of bodies, no one of which had enough strength to ward off any grave contingency.

The Japanese had fortified their front in the Shaho district along a stretch of thirty-five miles by means of two lines of closed redoubts and a third line of deep trenches, and relieved thus of any anxiety for the safety of their center, began to maneuver their wings. On February 24th Kawamura attacked the defiles of Chinghocheng, captured them, and drove back the Russian outposts. On the 26th he planned a wide enveloping movement with two combined detachments. The former comprised four regiments of cavalry, a battalion of infantry, twelve field-guns and twenty-four machine guns. The latter was of analogous composition. These troops had no transport, and General Pavlov reported them marching to the northeast with astonishing rapidity. Kuropatkin, more and more alarmed for his left, sent in that direction the First Siberian Corps, which was in position near Mukden. This corps covered fifty miles by forced marches and had hardly got in touch with the enemy before it was recalled to the right. It reached Mukden March 3d, after going 125 miles for nothing, and was so tired out that till the 9th scarcely any use could be made of it. On the 10th it got orders to retreat.

On February 26th the Japanese Army had taken the offensive along the whole line, and all its frontal attacks, renewed incessantly till March 8th, failed. On the extreme left the Russians held on with equal success and at Kaotuling, February 28th, even captured a battery. On the west the Second Brigade of Japanese Independent Cavalry, accompanied by its artillery and 1000 foot, and forming an advanced echelon to the left of Nogi's army (which till then had been masked behind Oku's flank), crossed the Hunho February 27th, and on March 1st drove the two regiments of Russian dragoons out of Sinminting, thirty-five miles away. It afterward turned off to the north of Mukden, constantly outflanking the Russian right, which vainly endeavored to resist its enveloping movements. A brigade of the Sixteenth Corps, drawn from the general Russian reserve at Mukden and sent out to the flank-guard, was on the point of being destroyed,

Attacked by Nogi's infantry in front and by his cavalry in rear, it was forced, enveloped as it was, to fight, and was unable to rejoin the army until March 5th. On March 9th the Japanese cavalry succeeded in cutting the railway between Mukden and Tieling. Incessantly harassing the Russians in their retreat, it captured vast quantities of material and, had it been in greater numbers, would have accomplished stupendous results.

The leading columns of Nogi's army followed in a series of four echelons from the left, so that by facing east they could fall upon the Russian right. On March 3d Nogi deployed and, preceded by a screen of mixed detachments, marched on Mukden, from which he was now only nine and one-half miles distant. On March 4th the First Independent Cavalry Brigade was given to Nogi, who united it with the Second into one provisional division.

The Russian cavalry, unable to pierce the screen, could obtain no reliable information, and so completely were they baffled that Kuropatkin believed that on this side was nothing but an unimportant demonstration. Even on March 6th he still sent reassuring despatches to St. Petersburg, for along his whole front from south of Mukden as far east as Tita, some fifty miles, the Japanese had been repulsed with loss. On the evening of the 6th or morning of the 7th, the real danger became apparent. The army of Kaulbars had been forced to change front, and, though the Japanese could now push forward only some three miles, the battle was lost by the evening of the 9th.

It is singular that the Russian cavalry, which pushed its reconnaissance to Tauan on the Liao, did not discover the march of Nogi till the 27th; and it is the more singular in view of the fact that the Hunho was frozen and could be crossed everywhere. Since Nogi's march was discovered by the Russian cavalry February 27th, why was Kuropatkin not informed of it till March 7th? This is a problem of deep consequence and deserves careful study. Indifference, demoralization, disloyalty to commander-in-chief, lack of patriotism, stupidity, bad training, jealousy among the cavalry leaders, indiscipline, all of these may be, and from what we have shown in several passages above, several of them probably must have been factors in the solution of the problem. If so, we need not look further for reasons for the almost total failure of the Russian cavalry not only at Mukden but throughout this war. It should be noted that this cavalry had changed commanders three times in a few days.

Let us follow a little further in detail the movements of Nogi's cavalry.

March 2d it reached Tsaodiatai, while the Ural-Transbaikal Cossacks did nothing to oppose it. This same day the First Brigade of Independent Cavalry also fell under Nogi, and was used to fill the gap between his army and its Ninth Division, which formed the pivot for his great turn to the east.

On March 3d, while on the extreme Japanese left, the second brigade of cavalry encountered Bürger's brigade, which was returning from Sinminting to Mukden, and drove it back to the north, though it was supported by the Ural-Transbaikal Cossacks and had a great superiority in numbers.

This shows clearly the state of demoralization of an important fraction of the Russian Army, and from this much may be inferred as to the whole.

On March 4th, as already said, the two independent brigades were united to form a division under one command. On this day and March 5th, the division remained near Tchensintaisa.

On the 6th it confronted the Ural-Transbaikal division at Ehrtaitsu. It had orders to destroy the railroad and interrupt communication north of Mukden at Hushihtai, and though the previous attitude of the Cossacks promised little or no opposition, it did not attempt to execute the orders till the 7th, when it was repulsed.

On March 8th the provisional division of Japanese cavalry had a dismounted fight on Nogi's extreme left with the Ural-Transbaikal Cossacks. This affair was without useful or decisive result.

On March 10th, during the general retreat of the Russians, the cavalry of Kuroki's army, supported by a reserve brigade, marched north and captured some trains near Siadiavusa.

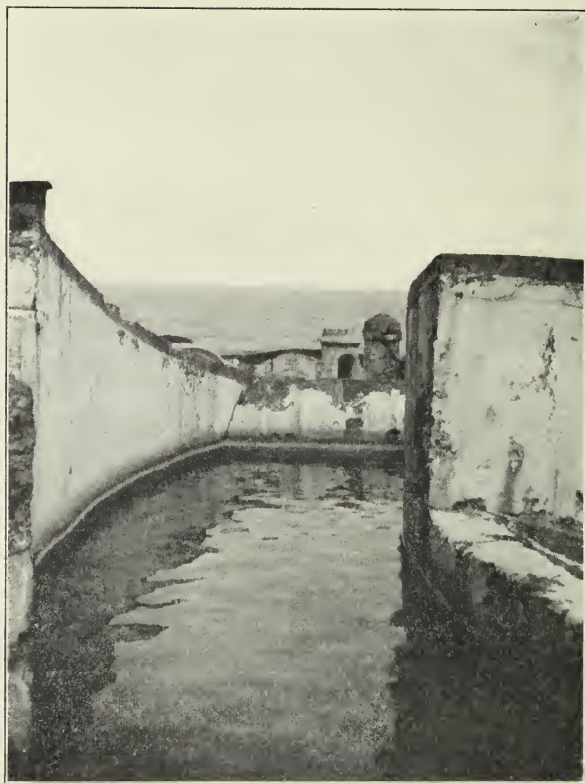
The Battle of Mukden is the greatest in modern times, and brings to mind some of the ancient conflicts where the losses were so incredibly large. The Russian armies were intrenched. Every resource of field-fortification had been used; huge redoubts with wide and deep communication-trenches, siege-guns facing the railway station at Shushanpu, batteries provided with epaulements, stores of ammunition in the trenches, barbed-wire entanglements, explosive mines, electric and automatic fougasses, timber watch-towers seventy feet high, electric search-lights, roads made between the first lines and the rear, a broad-gauge military railway running parallel with the front of the army and linking the district south of Mukden with Fushun in the center of the left, a network of telephones between the

works and headquarters; nothing had been neglected. The Russians had, it is true, some 50,000 men less than the Japanese. But from February 25th to March 4th they fought night and day with the utmost gallantry, multiplying counter-attack upon counter-attack. On the latter date, however, their right, outflanked by the Japanese, was forced to fall back and form a defensive flank, the fighting front thus taking the form of two sides of a square. During the night between the 8th and 9th their line of communication to the north of Mukden was so gravely menaced that retreat was inevitable. On the 9th the extreme right was outflanked in its turn, and on the 10th a portion of the troops under Kaulbars and Bilderling, caught between two fires by a Japanese force of cavalry which had taken advantage of a wide gap between the two armies, suffered terrible disaster. The Russian losses amounted to 40,000 prisoners, 90,000 wounded and 26,000 killed—in all, a total of 156,000 men. The Japanese reports admitted a loss of 46,500, which is doubtless much below the truth. The defeat of the Russians was, therefore, complete, and it is not too much to affirm that one main cause of the catastrophe was their failure to make proper use of their mounted forces. The Russian cavalry had scarcely any influence for good, but very much for evil at Mukden.

[TO BE CONTINUED.]



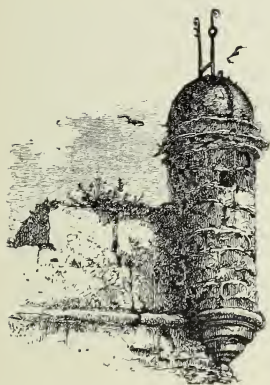
Lieutenant Stavitsky and ponies captured from the Japanese during fighting around Sandepu.



THE MOAT—EL ALBANICO.

THE FORTIFICATIONS OF SAN JUAN.*

BY CAPTAIN ARTHUR P. S. HYDE, COAST ARTILLERY CORPS.



THE city of San Juan, Porto Rico, is situated on a small island about two and one-half miles long, and varying from a quarter of a mile to a half mile in width. It is separated from the main land of Porto Rico by San Antonio Channel, across which the Military Road is carried on a substantial bridge of masonry and iron.

Although the municipality of San Juan includes the suburb of Santurce on the main land, and the outlying barrios of Puerta de Tierra and La Marina on the island, the city proper is situated on the western end of the island, and was, until 1897, completely surrounded by a defensive wall. In that year the Puerta de Tierra, or land gate, from which the first-named barrio derives its name, on account of its proximity, was demolished, together with a portion of the wall on either side of it, some hundred yards in extent.

Another portion of the wall, that overlooking the Plaza de la Marina on the harbor side of the city, was also removed, but with these exceptions, San Juan is still a walled city, and save for the well-paved and clean streets, the water and sewer systems, electric lights and street railways, has all the appearance of a sixteenth century Spanish town.

In this connection it is interesting to note that there had long been a tradition in the city, that when the wall should be removed the city would fall. Only a year after the demolition of a part of it, the island, and with it the capital, became American territory.

As one enters the city from the east by the Military Road, he is impressed with the extensive system of fortifications constructed by the Spaniards for the defense of the capital; and the military observer is most impressed by the fact that the system

*The substance of this paper was published in the *New York Tribune*, December 2, 1906.

has been evolved with special reference to a land defense, with a view to resisting an attack by way of the Military Road.

This is as it should be when we consider that the fortifications date back to the middle of the sixteenth century, and that those overlooking the sea are on such commanding heights as to be absolutely impregnable to the ships of the period. Even the bombardment by Admiral Sampson in May, 1898, did but little damage to these old fortifications.

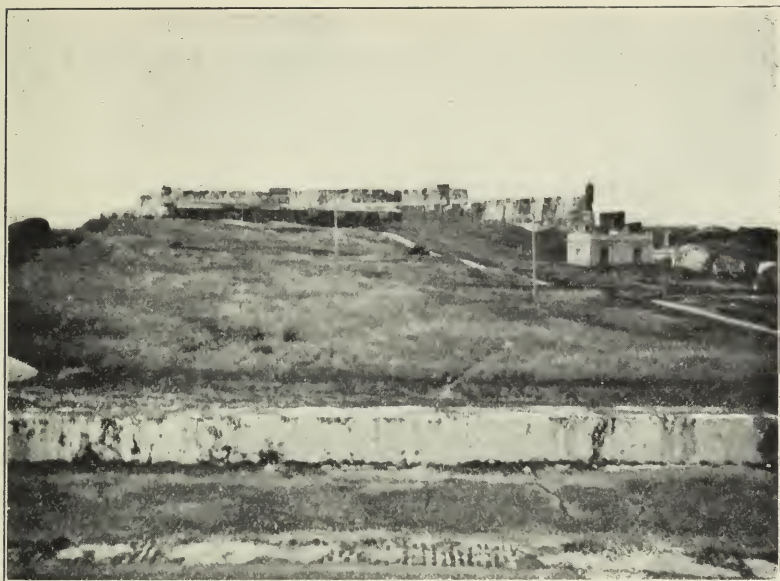
The first of a long series of defenses against a land attack is old Fort San Geronimo, situated on the most easterly point of San Juan Island, and covering with its artillery both the Military Road and the sea approach to San Antonio Channel. The entire eastern end of the island is protected by a breast-high masonry wall, extending from the sea on the north to the bay on the south, constituting the *Primera Linea*, or first line of defense. At the San Antonio bridge is a small blockhouse, provided with loopholes, so that the bridge could be completely covered by infantry fire, without the defenders being themselves exposed.

Fort San Geronimo has long since ceased to be of any defensive value. The guns were long ago removed, and a house, occupied as a set of officers' quarters, now occupies the center of it.

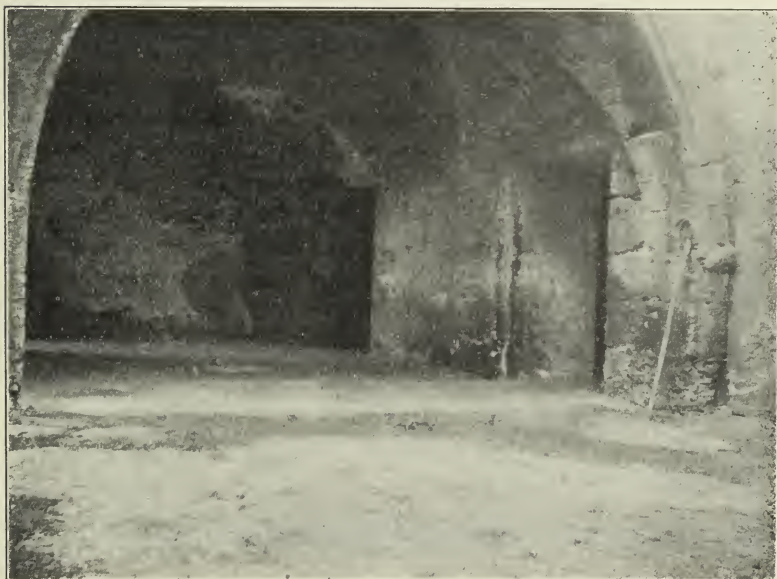
One is impressed, however, by the completeness of its defensive qualities in approaching it by road from the Military Road. This approach, even though from the rear, twists and turns at sharp angles, each of which was for the purpose of providing ample shelter for the defenders, should the enemy have succeeded in forcing a passage of the bridge, and thus make him contest every inch of the advance upon the rear of the fort. The fort itself is built on a huge rock, separated from the land by a moat, which can be crossed only by a drawbridge.

A few hundred yards to the northwest of San Geronimo, on Escambron Point, jutting out into the sea, is a small and comparatively modern fort called Fort Escambron. This consisted of a battery of several twenty-four-centimeter mortars, and was intended for sea defense only. It was built during the latter part of the past century.

Continuing toward the city by the Military Road, another breast-high masonry wall is passed, which crosses the island at the crest of a slight slope about a half mile to the westward of San Antonio bridge, and constitutes the *Secunda Linea*, or sec-



FORT SAN CRISTOBAL FROM EL ABANICO.



DUNGEONS AND EXECUTION CHAMBER.
FORT SAN CRISTOBAL.

ond line of defense. This, as well as the first line, was for infantry defense only.

A short distance farther and the advanced works of Fort San Cristobal are reached. This old fort, with its advanced works, its outworks, its place of arms, its bastions and its keep, is a striking example of the Vauban system of fortification.

The fort is entered from the front, through a gate protected by a small blockhouse, and immediately to the south of it is a small fort, or lunette, surrounded by a moat, called El Abanico. This is the most advanced work of the fort, and is apparently much older than any other part of Fort San Cristobal. Immediately in rear rises the glacis in gradual slope to its crest above the covered way, overlooking the moat of the main fort, three hundred yards to the rear. This little fort is built of masonry, and was defended originally with several pieces of artillery, but these have long since been removed.

To the rear and north of El Abanico, and facing the sea, is the modern Battery Princesa, mounting several fifteen-centimeter guns and twenty-four-centimeter mortars, built by the Spaniards in 1897. Farther to the westward and also overlooking the sea is Battery Santa Teresa, also mounting several fifteen-centimeter guns. This is also a modern battery, and both are complete with magazines, shell rooms, ammunition hoists and other accessories. These batteries, however, do not represent the latest type of sea-coast defenses, as exemplified in the more recent American fortifications, but are decidedly modern as compared with the older works of defense in San Juan.

Over the crest of the bluff toward the sea from Battery Princesa is an interesting relic of Spanish times, in the shape of the dungeons for the confinement of condemned prisoners and the execution chamber, where the convicts were garroted. The dungeons are built of masonry in the side of the bluff, half-way down to the seashore. The ceilings are vaulted, and when the heavy wooden doors are closed not a ray of light can enter. Ventilation, however, has been provided for, and it is remarkable how fresh the air keeps.

From El Abanico, a path leads up the slope of the glacis, behind the crest of which is a covered way, from which sorties could be made, as well providing a place from which an infantry fire could be delivered.

The counterscarp wall descends vertically from the covered way to the moat, the latter being reached by a flight of steps.

Across the moat rises the scarp wall to a height of over fifty feet. The land front of the main fort consists of two bastions with the connecting curtain, reinforced in front by the San Carlos ravelin, or demilune, which is practically a small triangular fort built in and completely surrounded by the moat. Smaller outworks, or counterguards, protect the fronts of both bastions, and the old city wall formerly extended across the island to the south in continuation of the counterscarp wall.

Entrance to the main fort from the front is gained by means of a tunnel leading up from the moat to the main parade inside the fort. This could be completely barricaded, in case the enemy should have gained possession of the outworks and the moat.

The main parade is a paved court, roughly triangular in shape, surrounded on the main front by the keep, or Castillo de San Cristobal, under a portion of which is the bomb-proof barrack; on the sea-front by casemates, and on the rear by a low building, formerly used as officers' quarters. The present officers' quarters are outside and in rear of the fort. The top of the keep and the barbettes over the casemates on the sea-front are reached by long ramps, two in number, leading up on the inside. A sally port, protected by a guard-house, gives access to a long and winding ramp leading out of the fort to the rear.

A number of picturesque sentry-boxes built of masonry and appearing like minarets are placed at points of vantage in and around the fort. One of these on the sea-front, and reached only through a long and dark tunnel from the interior of the fort, is known popularly as *La Garita del Diablo*, or the Devil's Sentry-Box, usually, although incorrectly translated the "haunted sentry-box." This name was given to it by the Spanish soldiers for the reason that a number of sentries stationed there disappeared in a most mysterious manner, and were never again heard from. Their disappearance was ascribed to the devil, who was supposed to have come and taken them away.

An American officer was once on duty that took him into the remote interior of the island, and while spending one night in a small settlement, he engaged in conversation with a number of the inhabitants of the place. One old man, on learning that the officer was stationed at Fort San Cristobal, became especially interested, and in the course of the conversation told the following story:

"I used to be a soldier in the Spanish Army, and was stationed at Fort San Cristobal. A number of soldiers, while on



SAN CARLOS RAVELIN—FORT SAN CRISTOBAL.



THE MOAT—FORT SAN CRISTOBAL.

sentry duty, had mysteriously disappeared from the sentry-box down by the sea, and we all became convinced that it was haunted by the devil, who, we thought, used to come and steal the soldiers away.

"One stormy night it fell to my lot to go on duty in the Devil's Sentry-Box, as we called it, at midnight, and it was with some doubts and misgivings that I went with the corporal of the guard and relieved the former sentry. When they left me I listened to the sound of their footfalls reverberating from the walls and ceiling of the dark and narrow passage, ever growing fainter and fainter as they receded, until, finally, the noise of the storm and the sea completely drowned it, and I was left alone with the mad elements.

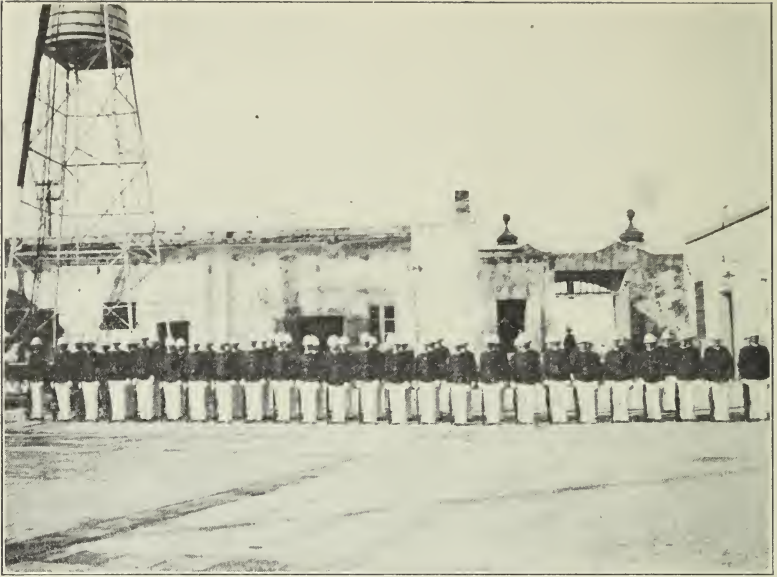
"It was a wild night and one well calculated to add to the feeling of awe that the Devil's Sentry-Box always instilled into the man on duty there at night. I was not afraid, but I felt creepy, as a person does when he expects something to happen which no human power can forestall—something supernatural.

"Presently my attention was attracted by some lights in a small tavern on the shore below the fort, where many of us were wont to go, when off duty, for a glass of rum. Then I began to think that I might be able to climb down over the rocks to the shore, get a glass of rum at the tavern and return to my post before the corporal of the guard should make his tour of inspection at one o'clock.

"The more I thought of it, the more determined I was to go; so finally, leaving my rifle and belt in the sentry-box, I climbed over the wall and down on to the rocks, and so made my way with great labor and difficulty, and no little danger, to the little house, where the occupants were making merry with dancing and drinking. I soon fell to and enjoyed myself with them.

"When one is dancing with a fair señorita he sometimes forgets the passage of time—as I did on that fatal night—and not until long after one o'clock did I begin to think of returning to my post. Then, realizing that the corporal had made his inspection and had found me gone from my post, and with my rifle and belt left behind, I saw only a court-martial and the garrote staring me in the face for in those days for a sentinel in the Spanish Army to quit his post meant sure death, even in peace.

"To go back was out of the question. There was only one thing left for me to do, and that was to desert. My heart sank within me. If I should be captured, the same fate would be



FIFTY-NINTH COMPANY, COAST-ARTILLERY CORPS.
FORT SAN CRISTOBAL.



BARRACKS INSIDE FORT SAN CRISTOBAL.

meted out to me; but, I reasoned, if I were to go back the fate would be a certainty, whereas, if I deserted, at least I had a chance of keeping out of sight of the authorities. I deserted, and before morning was out of the city and on my way to the mountains.

"I have lived in this little hamlet for years and have never been back to the capital since that day, nor have I ever told my story to a single soul until to-night, but now that the Spaniards are gone, I no longer fear for my life."*

Thus we have the story of the Devil's Sentry-Box from one of the very men who so mysteriously disappeared from it, and it would seem to be more than probable that the other disappearances could be accounted for in a similar manner, were the truth known. *Quien sabe?*

Fort San Cristobal was formerly connected with Fort El Morro and the palace of the governor, both more than a mile away, by underground passages, but these have long since become clogged up with débris and closed.

The city wall begins at Fort San Cristobal and follows the crest of the bluff overlooking the sea to the north, to Fort El Morro, which stands on a rocky promontory at the extreme northwestern end of San Juan Island, overlooking the entrance to the bay. This wall is of masonry and is very substantially built, its continuity being interrupted at intervals with bastions the largest of which are those of Santo Tomas and Las Animas.

Fort El Morro is in reality the citadel of the entire system of fortifications, and being so far inside the lines has no advanced or outworks. It is a noble structure, standing guard over the entrance to the bay and harbor, and at the same time serving as a last stand against an attack from the land side.

As one approaches from the land side, he sees only the broad and sweeping glaxis, with the masonry fort rising, beyond the moat, to only a very moderate height. This face of the fort is flanked by a bastion at either end, and further on either flank is a seacoast battery, that facing the sea known as Battery San Antonio, and that on the bay side as Battery San Fernando.

The fort was built during the period from 1584 to 1606, and was thus completed more than three hundred years ago, and one year before the earliest English settlement was established in America.

*The writer is indebted to Brig.-Gen. Henry A. Reed, United States Army (retired), for this story, which he has taken the liberty of putting in narrative form.

The moat is crossed by a stone arch bridge, and one enters the fort through a sally port, where a sentinel stands guard. Over this sally port was formerly a bronze coat of arms of Spain, but this disappeared before the fort was turned over to the American troops, and it is thought that some member of the Spanish garrison threw it into the sea to prevent its falling into the hands of the conquerors.

Inside the fort is a paved court, surrounded on all sides by casemates occupied as quarters for the men, messrooms, kitchen, storerooms, office, post exchange, etc.

To the front, right and left, as one enters, are other sally ports. That to the right leads to Battery Carmen, overlooking the sea, and to a ramp leading up to the barbette over the casemates, called the Castillo del Morro, where other guns are emplaced, bearing on the sea, bay and land. The sally port to the left leads to another ramp by which the castillo is gained.

On the top of the fort stands El Morro lighthouse, whose revolving light, 130 or more feet above the water, may be seen for many miles out at sea. The present lighthouse was erected to replace the one destroyed during the bombardment by Admiral Sampson's fleet in May, 1898.

Crossing the main parade of the fort, the visitor passes through the westerly sally port and descends a long flight of steps to another part of the fort on a much lower level, and extending well out to the extremity of El Morro Point. A ramp connects this part of the fort with another parade on a still lower level, which is also surrounded by casemates. A tunnel entered by passing through the most westerly casemate on this level leads down to the water battery, only fifteen feet above the waters of the entrance to the bay. Thus, at one time, guns were mounted in five tiers in this remarkable fortress, viz.: the water battery, the casemates and barbette of the lower fort, and the casemates and barbette of the upper fort—from fifteen feet above the water to more than 100.

Everywhere about the fort, and especially the lower tiers, may be seen evidences of Admiral Sampson's bombardment, but this very damage shows the strength of the defenses to resist an attack from the sea. The greater part of the fort is built on solid rock, and the task of the constructing engineers seems to have been only to accentuate the admirable defensive qualities given the promontory by nature.

An interesting feature of the construction of both Forts



SALLY PORT—FORT EL MORRO.



OFFICERS' QUARTERS—FORT EL MORRO.

San Cristobal and El Morro is the great cistern found beneath the main parade, where rain water, collected on the various levels and led into the cistern by drains, was stored for the use of the garrison. Similar cisterns may be found under the patios, or open courts, in the middle of all the Spanish-built houses in San Juan, for, until the American occupation, the entire population of the city was dependent entirely upon rain water.

From the fort, the sea-wall of the city follows the crest of the bluff along the bay, interrupted at intervals by Batteries Santa Elena, San Augustin, Santa Clara and La Concepcion, and terminating in Las Palmas Bastion, overlooking the Plaza de la Marina, on the harbor front of the city.

A short distance from El Morro, and immediately above the city wall, is Casa Blanca, the military headquarters in Porto Rico. This old fort-like house is said to be the oldest residence in America, and was built by Ponce de Leon, the first governor of the island, in 1520.

About 200 yards farther along the wall is pierced by the Puerta de San Juan, the old water-gate of the city. From it the Paseo de la Princesa, or Princess Walk, extends to the barrio of La Marina on the harbor, following the water's edge below the city wall.

Above Batteries Santa Clara and La Concepcion rises the palace, or Government House, its foundations resting on the wall itself. This is, without doubt, the finest building in Porto Rico, and indeed would be a credit to any community. That part of the palace built on the wall, and circular in form, was at one time a small fort called the Fortaleza, and is the oldest part of the defenses of the city.

As a result of the Treaty of Paris at the close of the war with Spain, all the heavy guns mounted in the fortifications of San Juan have been dismounted and shipped back to Spain, and the coast artillery troops were, in consequence, withdrawn from the island in the spring of 1904. Extensive plans for the proper defense of this important and strategic harbor, utilizing the most modern guns and accessories, have been made, and before many years have elapsed the new batteries will be constructed, but the old Spanish defenses of the city will always be of interest on account of their completeness and historic association.

In addition to the forts, there are three old Spanish barracks in the city of San Juan known as the Cuartel de Ballaja, the Cuartel de San Francisco and the Cuartel de San Domingo.



FORT EL MORRO FROM THE SEA.



CITY WALL OF SAN JUAN FROM BAY.

CASA BLANCA—GATE OF SAN JUAN—THE PALACE.

These buildings are all of the usual Spanish type, built in the form of a quadrangle, with a paved court or parade in the middle. Officers' quarters are located on one side, and quarters for the men, messrooms, kitchens, storerooms and offices occupy the rest of the building. The first mentioned barrack is now occupied by four companies of the Porto Rico Infantry, the native regiment in the United States Army that has rendered such efficient service, while the other two have been turned over by the United States Government to the Government of Porto Rico for civil purposes. The Cuartel de Ballaja is now officially known as the Infantry Barracks.

One company of the Porto Rico Infantry garrisons Fort El Morro, a second one, Fort San Cristobal, and the remaining two (the regiment has only two battalions) are stationed at Henry Barracks on the Military Road near Cayey, in the interior of the island.

There is an interesting fact in connection with the defenses of San Juan. Although for centuries Porto Rico was considered the legitimate prey of free-booters, and was attacked at various times by regularly organized expeditions of the English and the Dutch during times of war, with more or less success, Fort El Morro has never been captured by an enemy, and its only surrender was to the Americans, together with the surrender of the whole island. On more than one occasion the invaders captured and sacked the town, but since the completion of El Morro, in 1606, it has successfully withstood every attack and bombardment.



MILITARY BANDS.*

BY MAJOR FREDERICK A. MAHAN, U. S. A. (RETIRED).

ORGANIZATION OF BANDS.



IN the organization of bands the question of instruments is the only one to be considered. After the instruments best suited for a band have been determined, and the numbers of each laid down, the personnel is selected.

But before taking up the study of the organization of bands, a few elementary acoustic principles will be stated. Should any one wish to study them, he will find them all treated in any elementary work on acoustics.

Sound is the sensation produced on the brain by the impingement of certain classes of atmospheric waves on the drum of the ear. All sounds travel through the air with the same velocity.

Pitch is determined by the rapidity with which the waves strike the ear; the more rapid the succession of strokes, the higher the pitch.

Tone color (*klangfarbe* in German, *timbre* in French) is determined by the form of the impinging wave.

If a cylindrical tube open at both ends be taken and the column of air contained in the tube be set in vibration by, for example, blowing across the end, as boys do with a key, a sound will be produced. If the lips and breath be so adjusted that only a single wave shall traverse the tube, the sound produced is called the fundamental sound or sound one of the tube. The intensity of vibration is greatest at the ends of the tube and least at the middle. The points of maximum vibration are called *loops*, and those of minimum vibration are called *nodes*. So if LL' be the length of the tube, the maximum of vibration will be found at L and L'

N

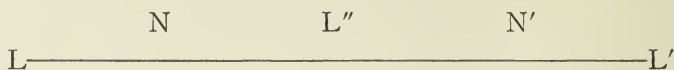
L ————— L'

and the minimum at N.

If, now, the breath be forced, the air column will be made to vibrate in two equal parts, a loop will be formed at each end

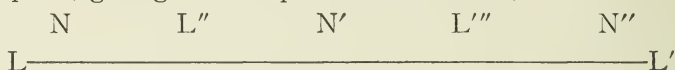
*Continued from January JOURNAL.

of the tube and a third loop at the middle, while the nodes will be found at one-fourth of the tube's length from



each end, thus: LL'L'' are loops and NN' are nodes. Twice as many waves reach the ear in a given space of time as in the former case, and the sound produced is called the octave of the first sound. It is also called the first harmonic or sound two of the tube.

Increasing the pressure again, the air column will vibrate in three parts, giving four loops and three nodes, thus:




LL'L''L''' being loops and NN'N'' being nodes. Three times as many waves reach the ear in a given space of time as in the first case, and once and a half as many as in the second. This sound is called the twelfth of the first sound or the fifth of the second. It is also known as the second harmonic or sound three of the tube.

The distance from loop to loop or from node to node is called a wave length.

Theoretically, this increase of pressure with a corresponding division of the tube and of the resulting wave length can go on indefinitely, but practically it is impossible for the human lips, which can make the column of air vibrate as a whole, to divide it up into sixteen parts.

To illustrate what has just been said, let us take a tube whose length gives, with one single wave length, the sound represented

musically by this character:  Such a tube is called the

eight-foot C, because the note so written is called C in musical parlance, and the length of the tube under the old pitch in use when the name was given was almost exactly eight feet. This sound for this tube is, as already stated, the fundamental sound or sound one. The successive sounds to be obtained from this tube are represented musically as follows:



The figures above the notes indicate the number of parts into which the air column is divided in order to produce the sound indicated. The sounds of the open-faced notes are true, those of the solid-faced notes are all too low for what they represent. The figures represent also the relative number of impingements on the drum of the ear caused by the different sounds, or, in other words, the number of vibrations in a given time, generally a second. The actual number of vibrations corresponding to the above fundamental at the standard international pitch is 129.3 single vibrations per second, hence, for sound two, the number is 258.6, for sound five it is 646.5. The ratio between vibrations is called an interval; these intervals have different names:

The ratio 1:2 is called an octave.

The ratio 2:3 is called a fifth.

The ratio 3:4 is called a fourth.

The ratio 3:5 is called a major sixth.

The ratio 4:5 is called a major third.

The ratio 5:6 is called a minor third.

The ratio 5:8 is called a minor sixth.

The ratio 8:9 is called a major second.

The ratio 9:10 is called a minor second.

The ratio 16:17 is called a semi-tone.

The ratio 6:7, 7:8, 10:11, 11:12, 12:13, 13:14 and 14:15 are not considered on account of the inaccuracy of sounds 7, 11, 13 and 14.

If, instead of a tube open at both ends, a tube closed tight at one end be taken and set in vibration, an entirely different set of phenomena is had. Experiment has shown that, in this case there is formed a loop of vibration at the open end of the tube and a node at the closed end.

L—————N

As a full wave length is the distance from loop to loop or from node to node, and as loops and nodes must alternate, we have in the closed tube only half a wave length. To complete the length of the wave there must be added a section of tube as long as the one last given. But a loop at each end with a node in the middle is the condition of vibration of an open tube, hence to have the same pitch the open tube must be twice as long as the closed tube, or, in other words, a closed tube always sounds an octave lower than an open tube of the same length, both tubes having the same cross-section.

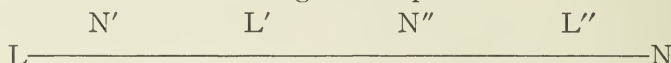
If, now, the pressure of the breath be increased, as loops and nodes must alternate, and as there must be a node at the closed

end and a loop at the open end, the position of the second node can be only at one-third of the length of the tube from the open end, thus giving a loop at the same distance from the closed end.



LL' are loops and NN' are nodes, and the air column vibrates in three parts.

A further pressure would give three loops and three nodes, with the air column vibrating in five parts:



LL'L'' being loops and NN'N''' being nodes.

In this way are obtained a series of harmonics which correspond to the odd numbers of the harmonics of the open tube. They are shown by the numbers below the series of harmonics given above.

Practically, no tube can be made to give the full series of harmonics written, because the human lips are not equal to the task. Long narrow tubes will utter more of the series than will shorter tubes of greater diameter.

The tubes used for band instruments are not confined to those of cylindrical form. Some of them are trunco-conical and some are partly cylindrical and partly trunco-conical. Experiment has shown that a conical tube completely closed at the vertex gives the same series of vibrations as does the open cylindrical tube. The trunco-conical tube also gives the same series provided that the ratio of the diameters of the ends be not less than four to one. Tubes which are partly cylindrical and partly conical give the same series if the ratio of the end diameters be not less than four to one, and if the conical portion forms at least one-half of the total length.

The expression partly cylindrical and partly conical is not accurate. If a cylinder and a cone were joined together, the abrupt change would vitiate the vibration of the air column to such an extent as to make the combination absolutely useless. Consequently, the expression must be accepted as giving only a rough idea of what is meant. The actual curve of junction between the parts, as shown by a longitudinal section of the tube, is an exceedingly complex one.

The material of which the tube of an instrument is made has absolutely no effect on the tone quality, providing that the tube

be sufficiently rigid to stand the vibrations of the air column and that the interior be perfectly smooth. The tone quality depends only on two things: (1) the shape of the air column or the interior form of the tube, if laid out in a straight line; (2) the medium through which the column of air is set in vibration.

The division of instruments into wood and brass has no meaning so far as tone quality is concerned. The tubes of the so-called brass instruments are very long, as a rule; that of the E-flat flügelhorn has a length of three feet seven and one-half inches, and that of the B-flat double-bass, nineteen feet four inches. To make such long tubes manageable, they have to be bent over more or less on themselves; brass tubes are best adapted, all things considered, to this operation, but the metal has nothing to do with the sound.

The tubes used for band instruments are cylindrical, trunco-conical, or a combination of the two. The cylindrical instruments are clarinets and flutes, generally. In former times the flutes were generally trunco-conical; this shape has been almost completely abandoned since the introduction of the Boehm flute. The trunco-conical instruments are oboes, bassoons, sarrusophones, saxophones and bugles. The instruments, which are in part cylindrical and in part trunco-conical are the horns, flügelhorns, trumpets and trombones. All band instruments, save the flutes, have stopped tubes.

Different methods for setting the air columns of instruments in vibration have been adopted, and altogether the best and most logical classification of instruments is that by which the vibrations are obtained. There are four ways of doing this.

1. By means of the breath as it leaves the lips breaking against an edge in front of them. These are called *mouth instruments*. The flutes all belong to this group.

2. By means of a slip of reed fastened to one side of a wedge-shaped mouthpiece. A very thin air-passage is left between the reed and the mouthpiece. These are called *single reed instruments*. Two families belong to this group: the clarinets and the saxophones. The clarinets have cylindrical tubes, the saxophones trunco-conical tubes.

3. By means of two slips of reed put together in such a way as to give at one end, that of the mouth, an opening having the shape of a very thin double convex lens, and at the other a circle which fits over a small piece of tube in the small end of the instrument. These are called *double reed instruments*. Two fam-

ilies belong to this group: the oboe-bassoon family and that of the sarrusophones. Both families are trunco-conical from mouthpiece to bell, the diameter of the sarrusophones being much greater than that of the others.

4. By means of a mouthpiece containing a cup against the rim of which the lips are applied. The cup has different forms, as has also the connection between the cup and the tube of the instrument. These are called *mouthpiece instruments*. Two families belong to this group; the flügelhorns, and the trumpets and trombones. The horns, which have no family, belong to this group, as do also the cornets, they, too, being instruments apart.

Leaving the mouthpieces aside for a moment, the question of the shape of the tubes will be considered. This shape gives the characteristic tone of the instrument. The flügelhorns will first be considered, as they are the foundation of every properly organized band, whether there be only mouthpiece instruments in its composition or whether all the other sorts of instruments be added. It is a family of eight members, known as the high soprano, soprano, alto, tenor, barytone, bass, deep bass and double bass. Theoretically, the tubes of this family are conical from the mouthpiece to the bell. The infantry bugle, from which this family is derived, is conical from end to end save where it expands into the bell. The tubes have a large diameter as compared with their length. Experience has shown that a tube of this form is very harsh of sound and that a certain length of cylindrical tube is necessary to take away the harshness. The mouthpieces (Figs. 3 and 6) are very deep, the throat far from the face, the curves of the inside being very gently reversed. The length of the cylindrical tube, and, consequently, the distance of the pistons from the mouthpiece should be as short as possible. The quality of tone of this family of instruments is soft, rich and mellow; when the proportions of the tubes are well followed, this section of the band sounds like a splendid church organ.

The first family of instruments to be added to the flügelhorns, in the development of the band, is that of the trumpets and trombones. Trumpet in Italian is *tromba*, adding the augmentative *one*, trombone appears; a big trumpet. The tube is quite narrow, cylindrical for two-thirds of the length from the mouthpiece, narrowly conical from there to the bell, which opens out very suddenly. The cup of the mouthpiece is very shallow, for

the band trumpet the depth of the cup (Fig. 2) is about three-fourths of its diameter at the face; for the ordinary cavalry trumpet the depth should not exceed two-thirds the diameter. The less the depth the shriller and more blaring the sound. The throat forms all around a sharp angle with the cup. The tone quality of this family is clear, brilliant, penetrating and essentially warlike and martial.

Before going further, it may be well to say a word on the subject of the cornet, an instrument derived from the post horn of former times. When properly constructed, it has a narrow tube, less so than that of the trumpet, conical from mouthpiece to bell. The mouthpiece (Fig. 4) has a shape between that of the trumpet and that of the flügelhorn. Unfortunately, the makers of instruments, in order to satisfy the ignorant whims of players, have so altered the shape of the tube of this instrument that they have made of it nothing better than an emasculated trumpet.

Outside of England, Belgium and France, the writer has been unable to find that the cornet is used sufficiently to mention it. In France and Belgium, it is wholly a secondary instrument. M. Parès, the bandmaster of the Republican Guard Band of Paris, which is one of the very few great bands of the world, took a first prize for cornet at the National Conservatory of France. With his great experience, he must be accepted as an authority. In his treatise on "Instrumentation and Orchestration for the Use of Reed and Brass Bands," he says: "It would be rash to state that its tone quality is very noble, very distinguished or to be compared with that of the trumpet or the horn." And again: "With the trumpets, the cornets seem more noble, more distinguished, and work in perfectly with the horns and trombones; without them (the trumpets) the cornets again become flat and common whatever, besides, may be the talent of the artists who may play them."

M. Gevaert, the distinguished Director of the Royal Conservatory of Music of Brussels, and one of the greatest, if not the greatest, authority in Europe on all questions relating to Instrumentation and Orchestration, says of them, after having discussed the two great families of mouthpiece instruments, the flügelhorns and the trumpets and trombones: "The cornets, like true bastards, lie outside of the two great families; their tone quality brings them nearer to the trumpets than to the flügelhorns."

M. Vesella, the head of the Band Department of the Royal Conservatory of Music at Rome, declines, in his "Studies in Instrumentation for Bands," to consider them at all, but uses the B-flat trumpet in their stead. In Belgium the cornet has disappeared very largely from the military bands, and the movement has begun in France. M. Parès's work above quoted appeared in 1898, since then the cornet has been thrown out of the band which he conducts.

The writer has often tried to find out why the cornet is used as it is in the bands, both civil and military, of the United States. The only reason he has been able to discover is this: Most of the band leaders in the country are Germans. In Germany the flügelhorn is very generally called *cornett*, and the family of which it is the type is called *die Cornetts*. The *cornett* and the *cornet* (the former derived from the infantry bugle and the latter from the post horn) are pronounced alike in English, hence the confusion of names and of things. The German bandmaster, accustomed to the word *cornett* and hearing *cornet* pronounced in the same way has taken the latter for the former. The blunder once started has continued to be propagated, with the result that the cornet is used as the soprano of the flügelhorn family as well as of the trumpet-trombone family, while in reality it belongs to neither, and its tone quality jars in both, as it lacks the mellowness of the flügelhorns and the bright, clear brilliancy of the trumpets. It is to be hoped that the War Department will order, ere long, the suppression of the cornet and the substitution therefor of the B-flat trumpet.

Next in the order of instruments come the horns. These instruments have no family. Their tube is very long and conical throughout its length, very narrow and terminating in an exceedingly wide bell. The mouthpiece (Fig. 1) has really neither cup nor throat, but is rather an expansion of the small end of the tube with a face added for the support of the lips. The tone quality of this instrument is soft, velvety and dreamy. While the tone is so delicate when properly played, it becomes hard, harsh and brassy the moment that it is forced. Many bandmasters use the horns instead of the alto flügelhorns (or simply altos), a service for which they are thoroughly ill adapted. This is almost invariably the case with the German military bands. Here there is a reason (not sound, to be sure) therefor. All German bands have to play constantly as string orchestras. In the orchestra the horns are essential, so the band is sacrificed for

the orchestra. In a large band of sixty-five men or more, a quartet of horns is of great value; but their work is *sui generis*, and they must be kept to that or else they are ruined.

The horn is derived from the old hunting-horn. The latter was bent to a circular shape so that it could be slung over the body; routine preserves the shape. Horns are pitched in all keys; those in E-flat or F are the only ones used in the wind band.

The above are all the mouthpiece instruments in use or available for bands; all of them should be included in the so-called brass band.

The following table gives the individual members of each family. In the column "transposes," + before the degree means upward, — means downward:

	FLÜGEL- HORN FAMILY	TRANSPPOSES	TRUMPET- TROMBONE FAMILY	CORNETS	HORNS
Acute soprano.....		+ minor 7th	(1) Bb		
High soprano.....	(2) Eb	+ minor 3d	(3) Eb		
Soprano.....	Bb	— major 2d	Bb	(4) Bb	
Alto.....		+ minor 3d	Eb		
Alto.....	Eb	— major 6th			
Alto.....		— fifth			
Tenor.....	(5) Bb	— major 9th	Bb		Eb
Barytone.....	(5) Bb	— major 9th			F
Bass.....	(6) Bb	— major 2d			
Deep bass.....	G	— fourth	(6) G		
Deep bass.....	F	— fifth	F		
Deep bass.....	(7) Eb	— major 6th			
Double bass.....	C	— octave			
Double bass.....	Bb	— major 9th			

(1) Very useful in large brass band.

(2) Essential in brass band; useful in reed bands of seventy men or more, and then only one needed.

(3) Essential in large brass band.

(4) Unnecessary anywhere.

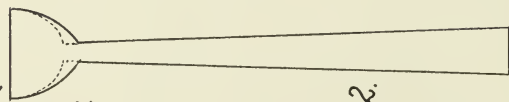
(5) These three instruments have all the same pitch, they differ only in the diameter of their tubes, the tenor being smallest, the bass largest. The bass, which has generally four pistons instead of three, is frequently called *euphonium*.

(6) The bass trombone is generally tuned in F; in England, however, it is frequently found in G.

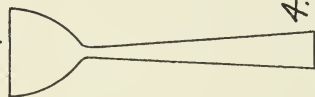
(7) Generally known as the tuba.

The accompanying plate gives the characteristic shape of the inside of six mouthpieces. Fig. 1 is that of the horn in which exists neither throat nor cup. Fig. 2 is that of the trumpet, a shallow cup out of which leads the throat in such a way as to form a sharp angle all around. The full line shows the mouthpiece of the band trumpet, the dotted line that of the trumpet for calls. Fig. 3 shows the mouthpiece of the flügelhorn, very deep with easy, gentle curves. It and the proper proportions of the tube give the rich, full, mellow tone which is the characteristic of the instrument. Fig. 4 is the mouthpiece of the cor-

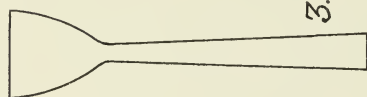
TRUMPET



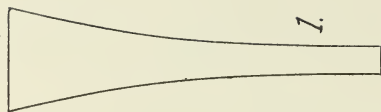
CORNET



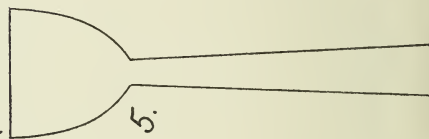
FLUGELHORN



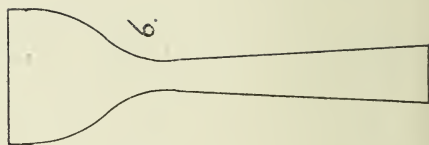
HORN



TROMBONE



TUBA



SHAPE OF INSIDE
OF
MOUTHPIECES.

net, lying between those of the trumpet and flügelhorn, as does also its tube; the sound of this instrument has neither the velvety smoothness of the latter nor the clear brilliancy of the former. Fig. 5 is the mouthpiece of the trombone; a glance shows the relationship of this instrument to the trumpet. Fig. 6 is the mouthpiece of the tuba; here the relationship of the flügelhorn is evident.*

Next in order in the building up of the band come the saxophones, in those countries where these instruments are used. These instruments have a mouthpiece of a single slip of reed attached by a ligature to one side of a wedge-shaped mouthpiece. Their tube is conical throughout. The successive notes are formed by opening holes made suitably in the side of the instrument. The tone of the instrument is rich and full; in quality it partakes somewhat of that of the clarinet, the English horn and the violoncello; this is particularly true of the alto clarinet, the best member of the family of which there are six, tuned alternately in E-flat and Bb, viz.: high soprano, soprano, alto, tenor, barytone and bass.

These instruments can be used alone to give variety and more flexibility to the brass band. They form the connecting link between the full, heavy, pompous character of the mouthpiece instruments and the bright, joyous sparkle of the reeds. The tone quality of the high soprano and soprano is harsh and far from good, unfitted for use in the reed band. The bass is a fine instrument, but heavy and inconvenient on the march. For the full reed band the alto, tenor and barytone are essential. If only one saxophone be available it should be an alto; if two, a tenor should be added; the barytone coming in as the third.

After the saxophones come the clarinets, a family embracing very many members, of which those in use generally for bands are the high soprano in E-flat, the soprano in B-flat and, if the band be large, say sixty-five or seventy performers, or more, the alto clarinet in F or E-flat and the bass clarinet in B-flat. In the Austrian and in some of the German bands an acute soprano in

*Since the above was put into press the writer has been informed by Mr. Mahillon of the results of some very interesting experiments which the latter has been making on mouthpieces. It appears from these that the shape of the mouthpiece has much less effect on the tone color of an instrument than has always been supposed until now. Tone color is due almost exclusively to the proportions of the tube. The influence of the mouthpiece appears in the accuracy of intonation of the harmonics. If the cup of the mouthpiece be too deep the pitch of the upper harmonics is lowered, if it be too shallow the pitch is raised. The mouthpiece then must be adapted to the instrument, otherwise the latter will sound false.

A-flat is used. Its use, however, is not apparent, as its tone is very sharp and disagreeable and it is also very hard to play.

The clarinet is sometimes spelled clarionet, which the writer believes to be incorrect for two reasons: (1) the *o* does not appear in any language but the English (and only occasionally there); in French, clarinette; in German, clarinette; in Italian, clarinetto; in Spanish, clarinete; (2) the name was given to the instrument on account of the resemblance of the sound of its middle register to the clear, brilliant sound of the trumpet, this latter being called, in former times, very frequently *clarino*. In the old scores for trumpets, in four parts, although all the instruments were alike, the parts were always called Clarino I, Clarino II, Principale and Toccata. Clarinetto is simply the diminutive for clarino. When the instrument was introduced into England the mistake was made of taking clarino to be the same as clarion, which is incorrect, the latter being the same as the bugle. So, instead of following the analogy of other countries, an *o* was inserted in the English spelling.

Beyond the clarinets the flutes are essential instruments in all bands. There are two of these, the flute proper and the small flute or piccolo.

There remain yet to be considered the two families of double reed instruments: the oboe-bassoon family and the family of the sarrusophones. The former includes the oboe, the oboe d'amore (out of use to-day but an instrument of most delicious tone), the English horn, the fifth bassoon, the bassoon and the double bassoon. These instruments are all trunco-conical from end to end and the reeds vary only in size. These instruments have, each, a different quality of tone, which distinguishes them readily one from the other. They all lack power, however, and, as M. Gevaert writes: "Their small, thin voices cannot succeed in making themselves heard through the massive sonorousness of the modern brasses; as Berlioz rightly says, 'they become there perfectly grotesque.'" All the same, the oboes are used in the French bands, but almost exclusively for solo purposes. In Germany, where the saxophone is persistently ignored, the oboes and bassoons are still used, but one never hears them on the march, as the writer has tested on several occasions.

The sarrusophones, devised by M. Sarrus, a bandmaster of the French Army, were intended to replace the oboes and bassoons of the military bands. They form a family of seven members. The tone quality of the four upper members, the high

soprano, soprano, alto and tenor, is hopelessly bad; that of the barytone is fair, that of the bass is good and works well with the bassoons, that of the double bass is excellent, full, very powerful and sonorous, making a fine solid bass for the entire reed choir.

Nothing need be said about the battery which, in the ordinary band, is composed of the snare drum, bass drum and cymbals, instruments of percussion with which every one is familiar.

Let us now assemble all the available instruments which have been mentioned and see what a list they make:

1st. <i>Family of the Flügelhorns.</i>	2d. <i>Family of the Trumpets and Trombones.</i>	
High soprano in E-flat (a). Soprano in B-flat. Alto in E-flat. Tenor in B-flat. Barytone in B-flat. Bass in B-flat. Deep bass in E-flat. Double bass in B-flat.	Trumpets. { Acute soprano in B-flat (a). High soprano in E-flat (a). Soprano in B-flat. Alto in E-flat. Tenor trombones in B-flat. Bass trombones in G or F (c).	Cornets à pistons (d). Horns.
3d. <i>Family of the Saxophones.</i>	4th. <i>Family of the Clarinets.</i>	5th. <i>Family of the Flutes.</i>
High soprano in E-flat (b). Soprano in B-flat (b). Alto in E-flat. Tenor in B-flat. Barytone in E-flat. Bass in B-flat.	Acute soprano in A-flat (b). High soprano in E-flat. Soprano in B-flat. Alto in F or E-flat. Bass in B-flat or A. Double bass in E-flat.	Large flute in C. Small flute or piccolo in C or D-flat.
6th. <i>Family of the Oboes and Bassoons.</i>	7th. <i>Family of the Sarrusophones.</i>	
Oboe in C. Oboe d'amore in A. English horn in F. Fifth bassoon in F. Bassoon in C. Double bassoon in C.	High soprano in E-flat (b). Soprano in B-flat (b). Alto in E-flat (b). Tenor in B-flat (b). Barytone in E-flat. Bass in B-flat. Double bass in E-flat.	

(a) Essential in brass bands, useful only in very large reed bands of seventy or more men.

(b) Unsuitable for use in the band on account of very disagreeable quality of tone.

(c) Essential in brass band of forty or more, or in reed band of over one hundred performers.

(d) Would better be replaced by B-flat soprano trumpet in all bands.

[TO BE CONTINUED.]

FIELD COOKING AND THE TRAVEL RATION.

BY MAJOR FRANK L. MUELLER, COMMISSARY OF SUBSISTENCE,
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A REQUEST to write about "Field Cooking and the Travel Ration" caused the writer to consider the manner in which the subject could be best digested by readers and listeners. The idea of treating the theme through the assimilation of a declaration of war, beginning with the orders to mobilize the troops, seemed the better way, and what follows is garnered from personal experience, both of the past and present-day systems.

I want to ask your indulgence, and beg to include the following as an introduction before beginning my subject. My object is to try to explain the importance of previous training and knowledge being imparted through the school system recommended and described in my paper published in the July (1907), JOURNAL MILITARY SERVICE INSTITUTION.

The Commissary of Subsistence should be somewhat familiar with the requirements of the Quartermaster Department. He should thoroughly understand the work of that department pertaining to transportation and should also have some knowledge of the present railroad facilities.

The line of supplies must be carefully watched, a detail being constantly on guard with the supplies. In time of war it is imperative that there should be no delay in forwarding the supplies, as important movements may be seriously affected by delays. While transporting supplies keep the components of the ration together. If unexpectedly subsistence is required, this will prevent confusion and delay in the issue. Keep the essentials always on hand, intact and ready, no great bulk of any one kind. It is also well to take into consideration the size of the command, say, the unit of divisions or corps. The delay increases with the size of the unit, and may require longer time to draw the rations, or subject the issue to some unforeseen obstacle. The commissary must be equal to any emergency that may arise and it is well to make provision for all kinds of obstacles he may

imagine might occur, but the commissary must always be in the advance. His department should not be experimental.

Our system of preparation in the organized militia is, necessarily, quite different from that of the regular service. At present the army commissariat has daily practice and experience, something unattainable by State troops, where the conditions are more complex; therefore, we must devise plans by which army conditions may, in a measure, be adaptable for the guard service.

It is my thought to have each State establish a system of cooking and training schools for the commissary and quartermaster-sergeants and cooks, whereat practical instruction in the manipulation and preparation may be had, embracing cooking demonstration of the regular ration; the instructors to be either army officers detailed from their school for cooks and bakers, or militia officers eligible after receiving diploma from the army school. School sessions should be had in the armory, say, monthly at the least, during the indoor drill seasons, and two sessions in the field previous to the encampment.

With the issue and the obtaining of a receipt for a ration, the interest of the commissary officer should not cease. On the contrary, he should, in every way, facilitate the preparation and handling of the same until it is put in proper condition before the consumer, *i. e.*, the man at the mess table. The health and strength, the very success or failure of a campaign, depend upon the inglorious and common place act of getting something to eat. Considering some of the advantages of the school system, particularly on account of our short field service, the lessons there taught will prove a great advantage in the savings, through the management, which forbids waste, and causes the ration to go almost twice as far as formerly. The quality of the food will be better because the manner of cooking will be better understood.

The school will create a closer association between the commissariat and the company officers, their sergeants, troop quartermaster-sergeants and cooks; and also an opportunity to test each others capabilities.

The companies (troop, battery hospital corps and band are also meant) have weekly and semi-weekly drills just prior to and in preparation for the yearly encampments, and the commissary department should have its weekly and semi-weekly drills through the medium of the school system.

Unless the cooks are well trained, the quartermaster-sergeants

well up in their duties, and each understands and respects the other, no matter how high the quality of the ration, it will all spoil between the time of its receipt and placing it upon the mess pans of the men. Improper preparation, poor cooking, ignorance of the nutritive value of the components, are alike as to trouble makers.

It is rarely the case that a good civilian cook proves to be a good field-cook; it requires intelligent training to produce the practical field-service cookery. The school will educate the man who does passably well in civil life, who has his hotel range, reinforced with a gas range, and everything at hand. He will be taught to improvise and will be given the practical knowledge of that with which he will have to contend.

I also recommend that each regiment and squadron have a mess-sergeant, eligible as an instructor, under the supervision of the regimental commissary. Such a sergeant should, necessarily, be fully capable, through proper training, to give practical demonstrations in first-class field cooking. He should understand the manipulation, preparation and cooking of the ration. During the indoor season his work in the armory could be carried on at such times as would be most convenient.

The entire company should attend some of the school sessions, so that each man could learn what is due him, and its value. The regimental commissary of subsistence should supervise the schools and their sessions, and even better, if it be a brigade school, with the brigade commissary of subsistence in charge. This great school could have the regimental personnel of the subsistence department as assistants and students. The organization of the company kitchen should be the same as that laid down in regulations.

The company quartermaster-sergeants should act as stewards, having full charge of the mess, have a thorough knowledge of food-stuffs, both as to preparation and as to nutritive value. He is the practical manager, responsible for the cooks and the kitchen police. He must draw the rations and arrange the menus, familiarize himself with the ration tables, of the economy of the savings, see that the cook gets the correct quantities, has the requisite utensils and observes proper sanitation, together with immaculate personal cleanliness. The sergeant should exercise absolute impartiality and be scrupulously honest.

The importance of good cooks for the militia service arises from their scarcity. A capable cook does not volunteer from

patriotic principles, but does enter the service solely because the compensation is large enough, the brief period in the field making a welcome change from the daily routine of the hotel. Then there comes another and a personal reason for the scarcity of good military cooks. That reason lies in the fact that *once a cook, always a cook*. In the militia the cook is rather looked down upon socially. The men generally would no more mix with the cooks outside of camp than would their mothers and sisters go shopping with their housemaids. Now, that I consider is a mistake. As matters stand, the militia cook has absolutely no show for advancement in grade. There is no provision for promotion for him as there is for the ordinary private soldier. The sole preferment is financial. In my opinion, there should be some additional method of reward, something that would appeal to that ego which we all have to a greater or less extent.*

The men of a poorly fed company when brought into contact with the men of a better fed company cannot help but lose respect for the officers responsible for such a condition. A conviction that they are not getting that which is their due quickly fosters insubordination, a prelude quite often to desertion.

The average cook knows very little about the proper temperatures requisite to boil, stew, roast, broil or fry. About one cook in a thousand is aware that cooking is a chemical process. Until that fact is taught, the cook cannot extract the full nutritive qualities from the material he uses. The rookie is not supplied with ammunition and sent to the rifle range until he has been instructed thoroughly in the theory through the aiming and sighting drills. Even then he wastes many cartridges before he becomes an expert, able to make bulls in strings. And yet how bad it is when the cook makes a bull of the rations. Some cooks make many errors, but there is no official scorer at hand to make a record of those misses, which are either cooked away or hidden in the garbage.

Our system of appointing a commissary of subsistence with the rank of captain to the regimental staff (making it a permanent office and an extra captain in each regimental unit), and the same to the higher formations, the brigade and division units, with increased rank of major and lieutenant-colonel, respectively, while not, according to the practice of the regular establishment,

*Under Army Regulations the company work stands on the same footing as regards reduction and promotion as chief mechanics, artificers, saddlers, wagoners, musicians and first-class privates.

is, in my opinion, for our purposes, far the better way. Through this system it gives us officers who are able to give to their duties their sole attention, having but that of the Subsistence Department required of them.

Frederick the Great asserted that "the art of conquering without the art of subsistence is lost." We give the subject of target practice the attention which is its due, and well worth the consideration and money expended. In conjunction with our department, the authorities should be made to realize that *Subsist Well, Shoot Well*. All the coaching in the world cannot make an expert shoot well if he has been fed badly.

These recommendations will not conflict, nor interfere, with the United States Army Regulations; on the contrary, they would aid in training and developing the quartermaster-sergeants and cooks, so that when the emergency arose the commissary and quartermaster departments of the organized militia will be more capable, more efficient and fully eligible to compete with those of the regular establishment.

We will assume that orders have been issued for a regiment of infantry stationed at Philadelphia, Pa., to take the field in response to a call from the President of the United States. We will refer to this order as G. O. No. 1, and assume that it directs that the regiment will entrain for Mt. Gretna, Pa., at 10.30 P. M., April 26, 1908. The paragraphs of the order relating to the commissary are as follows:

I. The regimental commissary of subsistence is charged with the duty of providing one day's ration for each enlisted man, and upon arrival at the designated point of mobilization will have a regular mess, with hot coffee, ready for issue.

II. A detail of eight enlisted men will be reported to the commissary, Captain Hustler, at 7 P. M., April 26, 1908, for the drawing and loading of the rations.

III. Company quartermaster-sergeants will carry on trains, in their respective company cars, coffee-pot, two yards cheese-cloth for coffee bag, can opener, large knife, and other portable utensils. Field-stoves, ration boxes, cooking utensils, pans, buckets and water barrels will be loaded in cars last (together with sufficient wood for one mess), so that they may be the first unloaded.

* * * * *

The regimental commissary should be in immediate communication with the commandant of his regiment and be fully posted as to what is required, constantly on the alert, apprehending the

order in his own mind, and make a general survey of the whole situation as to what he will do as soon as he receives the order. He should spend some time in consultation with the brigade commissary, to acquaint himself with what may be drawn, to issue the regiment's subsistence, and after fully digesting the orders, map out his plans for at least one day, and, if possible, for a much longer period, and prepare for various obstacles, the condition and circumstances of which may be more or less complex or varied, and give these details attention. If the brigade commissary has been established at Mt. Gretna, Pa. (camp of mobilization), the regimental commissary will arrange to take with him one day's field-ration, in addition to the travel ration, for emergency as a reserve in the event of any unforeseen obstacle materializing, receiving certificate from the issuing officer for the same, and if the brigade commissary has been established at Philadelphia, Pa., draw the ten days' ration before departure. The forethought is important and a very valuable habit to acquire, as some of our greatest generals attribute their success to this fact. Arrangements should be made with regimental quartermaster as to the time and place stores may be loaded and the acquiring of suitable transportation facilities, so that issues for mess for the breakfast may be made en route; ascertain the maximum strength of the regiment, arrange for the proper quantity of soft bread, coffee, sugar, salt, canned beans, pepper, evaporated milk, in addition to one day's issue of hard bread for emergency. The regimental commissary is responsible for all subsistence supplies of the regiment, and "may be required to perform the duties of commissary of the post" where he is stationed (A. R. 266). He should provide himself with a copy of the Army Regulations, copy of Army Ration Issue and Conversion Table Book, Subsistence Manual, necessary blank forms and books for letters sent and received.

Company ration returns should be received by the regimental commissary en route to destination, calculation made for the issue according to the United States Army Ration Issue and Conversion Tables. Arrangements should be made with the engineer of the train previous to the departure, for sufficient supply of hot water for coffee, at least one pint per man, from the engine boiler upon arrival Mt. Gretna, Pa., say, 4.30 A. M. point of disembarkation. This hot water, in order to be perfectly clear and not muddy, should be drawn off the top of the boiler by means of the engine squirt-gun. Every company should be

informed of this issue of hot water for breakfast and have their quartermaster-sergeants and two men report to the commissary at the engine to receive the same. The balance of the breakfast issue, consisting of soft bread, canned baked beans, salt, pepper, sugar, evaporated cream (which, I think, in the future will be a part of the United States Army issue). Ground coffee should be packed in double air and water-proof bags in the following quantities, viz., 3 lbs., 1 lb., 1½ lb. Sugar should be packed in same quality of bags as coffee, in quantities of 4 lbs., 1 and ½ lbs.; salt in original bags as received; likewise pepper, in order to make requisite weight according to the various company strengths, so same can be issued either en route or on the morning for breakfast, the former is preferable.

Regimental commissary should make a request for one good butcher, one clerk and four men as detail for his department, to report to him early on the morning of the 26th, an organization perfected at once, each man's duty thoroughly explained, and to be under the supervision of the commissary sergeant; arrangements made for drawing the balance of the ten days' ration from the brigade commissary; issue of fresh beef made at once in time for noon mess, providing same has not been drawn at Philadelphia before departure.

CAMP FOR MOBILIZATION.

Upon the arrival of the regiment at 4.30 o'clock the following morning, the weather is damp and chilly (hailing), mess served with the hot coffee, breakfast prearranged en route, after the camp site has been located and the kitchen line established; utmost despatch should be made in the transportation of the various stoves, cooking utensils and supplies. At the same time the various company quartermaster-sergeants and cooks, with details, should set up stoves, kitchen and supply tents, wood should be drawn in addition to the dry wood brought along, and an ample quantity of wood kept in a dry place, water required by the cooks should be secured and arrangements made for boiling drinking water, which takes about two barrels for each company per day. A tent-fly, or paulin, with upright and ridge poles, should be erected for shelter over the kitchen. Request should be made for kitchen police and preparation for noon mess begun and ready at the call. At the same time there should be an issue of fresh beef drawn from the brigade commissary, which

has already been established, together with the balance of the rations for two days on account of the ten days' issue, providing the same has not been drawn at home station before departure. The object in taking only two days' rations is to get the supplies to regimental commissary as soon as possible to enable him to make quick issues in ample time for noon mess, also teaching proper allowance and preventing extravagant quantities of rations being used at the beginning; drawing the balance of the rations the following day after camp has been established. The company quartermaster-sergeant, with the head cook, makes bills of fare for the following messes: dinner, supper and breakfast; on the second day, after breakfast, bills of fare should be made for the following three messes: dinner, supper and breakfast, and be continued daily; the quartermaster-sergeant, acting in the capacity of steward, checks up the supplies, to be sure requisite quantity of rations are on hand for the bill of fare arranged. Provision should be immediately made by digging a trench for boiling drinking water. Stoves should be set upon foundation made from large stones, wall-like, on the outside, and the small holes on the inside filled with small stones; sand or dirt stakes should be placed on the four sides of the stone supports to keep them intact. This support of stones will act as a heat retainer, if properly constructed.

The erection of the commissary supply tent should then be started. If the following have not been taken from the home station, they should be drawn from the Quartermaster Department: two hospital tents, with poles, two large paulins, scales, a field-desk and butcher tools. After erecting the supply tent dig a ditch around the tent. If the soil be loose or sandy, stones or other hard material should be placed under the tent poles to prevent working into the soil, leaving the tent slack and unsteady; if the soil is loose the pegs will not hold. In case of storm or rain additional guy ropes should be attached to the tent. Also see that the tents are erected on an elevated piece of ground. All articles, such as flour, coffee, sugar and salt, should be kept away from the wall of the tent in order to prevent their absorbing the moisture. Be careful not to get beans and rice wet, or the moisture is liable to swell these articles and cause the bags to burst. Salt pork in barrels should not be exposed to the sun, and should be rolled at intervals to prevent evaporation of the brine. Potatoes in barrels should be ventilated to permit the air to circulate, keep dry and avoid sweating. One decayed potato will

spoil the entire barrel with great rapidity. If lumber cannot be obtained use empty boxes as a floor, or base, to store the supplies on. Empty boxes placed with the open ends facing the center of the tent, used as compartments, make excellent substitutes for shelving, in which may be placed the supplies in small bulk.

At night before the cook retires he should arrange to have the oven filled with wood, all stove lids closed, also top of stove pipe covered with empty gallon tomato can, to prevent dampness circulating through the pipe and stove, so as not to interfere with draft in the morning, or in case of rain to insure a dry stove and quick fire, otherwise there will be a delay in the preparation of the breakfast, which is usually the case, caused by the aforesaid trouble in starting the fire in the morning. As far as possible, breakfast should be prepared and ready for the stove the previous evening.

On account of the sudden change in the organized militia from civil life to field-service, the troops not having the opportunity to become acclimated to the foreign condition, it is important for the regimental commissary to immediately perfect his organization and establish a school to instruct the various company and troop quartermaster-sergeants and cooks, have daily sessions of short duration, say, one-half to three-quarters of an hour each, explaining in detail the handling, preparing and cooking the ration, explaining the great importance of economy in the rations, utilizing the left-overs, mentioning the various articles with a view to making and increasing the savings, which increase the variety of the food.

ECONOMIQUE.

Utilize left-over potatoes for mashed potatoes, hashes, etc., from the left-over meats by adding par-boiled onions and potatoes, adding hot stock gravy, or beef drippings, also crumbled hard bread.

Irish stews can be made from left-over meats and vegetables.

Beef stew can be prepared by adding tomatoes, crushed hard bread, or baked old soft bread, crisp and brown, macaroni and grated cheese.

Utilizing the stale bread for bread pudding, or fried bread after soaking in batter of milk and eggs (if same can be obtained) seasoning, strewing with sugar or spreading jam on

same. The aforesaid recipe is applicable for the preparation of hard bread.

Hardtack may be used crumbled in stewed tomatoes.

Utilize left-over meats with crumbled hardtack for croquettes.

Peas and beans are the most nutritious of all the vegetables, as they contain as much carbon as wheat, almost, and double the amount of nitrogen (muscle-forming food).

Stale bread may be made equal to fresh bread by moistening (washing) the top and sides of the loaf and then placing in the oven and rebaking.

The commissary should make daily inspection of the kitchens and meals, note whether properly policed, refuse cremated and conditions sanitary, observing the ability of the quartermaster-sergeants and cooks. He should ask for the bill of fare, also observe whether the rations are being properly utilized; have an occasional meeting of the various company quartermaster-sergeants and cooks, suggesting ways and means for the improvement and advancement of the department which will prove beneficial. New cooks and quartermaster-sergeants should be coached carefully and advised to observe those who have more practical and advanced field knowledge, and where quartermaster-sergeants and cooks are so advanced as to be eligible as instructors, they should be directed to impart the proper knowledge to the new quartermaster-sergeants and cooks.

The regimental commissary should have the battalion commissary to assist, assigning certain detailed duties to him in order to help in educating and advancing those in the department, which will enable the regimental commissary to give more time to other observations, and enable him to devise important plans and methods requisite for the practical knowledge, this knowledge being imparted in the quickest and most efficient manner.

THE FOUNDATION OF THE KITCHEN.

Stock pot should be devised to provide good soups, gravies and sauces, into which should be placed all left-over bones and meats after the meat ration is cut. This is one of the French cook's great secrets of success, enabling him to make a great variety of palatable dishes from some of the previous left-over dishes thereby making something from nothing, making delicious sauces and preventing a waste. This is a very im-

portant feature, and its proper use should be closely observed and fully explained, also decreasing the refuse, which is quite a burden and has proven dangerous. After the nutrition has been extracted from this so-called waste it is made much easier for cremation, as it has been partially prepared for that process. This is one good way of reducing the garbage, as well as saving fuel, and a help in solving the sanitary problem.

Soups and stews should be served daily, particularly in cold and damp weather.

The commissary, after deciding upon the best cook in the unit, should be in constant consultation with him to become more fully informed in the practical knowledge of preparation and cooking of the ration. The commissary should observe whether mess is served at the call, and if late, investigate the cause and endeavor to prevent a repetition of the same.

AFTER INTERVAL OF NINE DAYS.

The commissary must be equal to any emergency and master of the situation. "The man is everything, the men nothing," was Napoleon's dictum.

Owing to continued hail, snow and rain, which was the case in the Spanish-American War when the troops were encamped at Mt. Gretna, Pa., wagons were not available, and horses could not pull wagons through the deep mud. This day regimental ten days' supplies (within one day) were exhausted and stores must be drawn. The commissary should request details large enough to carry the ration to the regimental supply tent by using rubber blankets or ponchos, rubber side turned out. Bread should be placed in the ponchos in quantities sufficiently reduced so as the weight and bulk will not tear the ponchos. The poncho should be folded over the issue with the end hanging over in order to carry off the rain and not allow it to touch the issue while being carried. The issue of soft bread could be direct to the various companies by this detail to prevent rehandling. The fresh cut beef, in quarters, could be conveniently carried by two men in this manner; take two ridge poles, or tent poles, tie a rope to the beef quarter and suspend the same from these poles; each man then taking an end of the poles on his shoulders, thus transporting the beef as litter bearers, so to speak. If the tent poles are not available heavy saplings, five feet long, can be used.

Flour, sugar, salt, coffee, beans should be protected with the poncho in the same manner as before described as to the carrying of bread. A "carry-all" could be improvised from these poles or sapplings with a rope meshing, or basketing it together for a bottom to carry the supplies in the same manner as previously mentioned. Potatoes, if not dry, and unless used at once, should be placed in the supply tent, separated to dry, allowing the air to circulate through them, thus preventing sweating and rotting. Bacon, which is easier carried, could be substituted for beef, but there is no need for this, as the beef is preferable and can be transported as previously explained. Wagon-horses could be used as packhorses, or the same method of using poles or sapplings could be used with horses instead of men by placing the horses abreast instead of tandem, as would be the case with the men. In the case of the improvised carry-all to be used with horses, the supporting poles would have to be braced apart and framed at each end to prevent the horses from crushing the supplies. In the use of horses one man may be required to lead each horse until they are broken to the work, but, of course, this depends on the temper of the horse. These weather conditions are used to explain how some of the obstacles may be overcome.

Individual cooking should be taught to the men in case they are detailed or away from their company mess by the use of the meat ration pan carried in the haversack mess by the use of the kit, sugar, salt, coffee, bacon, hard bread, potatoes; a small fire should be started, with water in the tin cup placed in the fire, potatoes placed at the side of fire in the hot ashes at the same time the bacon is being fried in the meat pan, after frying the bacon is placed in the other half of the meat pan, juice retained, water then being hot, the coffee is added, the retained bacon juice is placed on top of the tin cup and hard bread (hard tack) is then put in the pan of bacon juice and fried from the steam of the hot water in the tin cup, you are then ready for a wholesome and nutritious mess. (In addition with the evaporated cream, which will be considered a part of the ration, will improve this mess greatly).

After encamping twenty days at Mt. Gretna, Pa., G. O. No. 31 was issued to change station to Chicamauga Park, Ga., departing at 8.15 p. m., May 16, 1908. Provisions for two days' travel. The regimental commissary immediately makes preparation for the execution of the order, using about the same methods

and precautions as in the previous travel from Philadelphia to Mt. Gretna, Pa., excepting he has a good organization. The department with some practical knowledge should be almost perfect in this movement. In the preparation of the field noon mess should be included the evening mess, also preparation made for the travel South. One day's fresh beef, drawn in advance and either roasted or boiled, to be taken along by each company. Concentrated stock could be made by using the stock pot, later on adding vegetables, rice pudding, also baked beans, for the following noon mess en route South (all that would be required is the addition of hot water from the engine boiler, same application as for the coffee), viz.: baked beans, rice pudding, potato salad, etc., cold meat left over from noon mess for evening train mess. Another ten days' ration is drawn and loaded, also one day's travel rations, also two days' soft bread, in addition to the one-day hard bread on hand, packed as previously suggested, as a reserve, or to be used in case of emergency and the same utensils as specified in G. O. No. 1 is included in G. O. No. 31. If possible, secure a furniture freight car, which is desirable on account of its size, otherwise an ordinary closed freight car; same to be converted into a kitchen car. Its capacity would be sufficient for one section of the train, stoves should be set up, using coal instead of wood for cooking, taking great precaution to prevent setting fire to the car; the stove should be secured fast to the side of the car, and, if necessary, tin could be placed on the floor under the stove and on the side of the car back of the stove. A frame guard-rail, made either of heavy wire or wood strips, could be constructed to extend from the roof of the car by supports to within eight or ten inches from the top of the stove to prevent the utensils from slipping off the stove by the motion of the train. The utensils should be only three-fourths full, so as not to spill. Smoke-pipe can be fastened, running outside the door with only a small projection. A sufficient stock of wood and coal should be carried for this travel. Filled water buckets should be at hand to be used in case of fire. Noon mess could be issued at the usual stop of the train to the various details from the companies, the same to take the mess to their respective cars where the railroad crews and engines are changed, usually about half an hour.

Evening mess should consist of what is left over from the noon mess, with tea instead of coffee, same application of hot water from the engine as previously accomplished. Breakfast the

following A. M. should be arranged for with hot-water supply from the engine same as on the previous trip from Philadelphia to Mt. Gretna. The following day mess could be arranged using canned meat for hashes, stews, etc., but with the use of the kitchen car ample bill of fare can be prepared, having sufficient rations on hand. My idea of preparing meals to be served en route to destination is to continue the regular mess as near as possible to the natural field ration, so as to retain good physical condition and avoid any sudden change, also make the department self-reliant and avoid use of the liquid coffee, which is not always reliable in quality and delivery, only using travel ration in extreme necessity.

If the car kitchen cannot be used, the one day's ration prepared in the field in advance of the departure can be utilized, with the addition of the hot water from the engine, as explained, for the soup, coffee and all tea, and the second day the regular travel ration can be used.

After two days' travel, arrive at Chickamauga at 10.30 A. M., May 18th, having had coffee breakfast.

Arrangement is then made for the transportation of stoves, cooking utensils and supplies made for making camp, as Mt. Gretna experience.

Following this, the immediate erection of the kitchens is taken up, enclosing the same and screening of all food requiring protection from flies, trenches are dug for fires to boil the drinking water and preparation made for the midday mess. All grass and brush around or near the fire should be cut down to prevent accidents from fire. The fire should not be built on flat ground, but always in a trench dug in the direction of the wind in order not to lose the heat and require more fuel.

In this warm climate the heaviest meal should be in the evening. Tea should be used instead of coffee, or chocolate in preference to either on account of its nutritive strength, as tea and coffee possess no nutritive value excepting when milk or cream is used with them. Salads should be served and fatty food, such as pork messes, should be decreased.

Considerable attention should be given to the savings as per G. O. No. 107, dated, War Department, July 1, 1907, which permits savings on any of the ration components and gives an opportunity to increase and make a variety of palatable meals. Stew, with the addition of a little curry powder, is very desirable in a warm climate.

Extra precaution relative to the sanitary condition is now very important, and should be strictly observed.

Refuse, garbage and tin cans should be incinerated after each meal, as even burying tin cans will attract flies. All canned goods should be removed from the cans as soon as opened. The liberal use of onions and vinegar prevents scurvy. Fresh meats, as soon as received, should be put on ice, fire or par boiled at once. Coffee should be kept in tightly covered or sealed receptacles to prevent loss of strength and the absorption of moisture. Never use bulged or swollen canned goods.

Water barrels should be kept in a shady and elevated place and covered over top, sides and bottom with woolen blankets, bags or other porous material sewed together. Permit good breeze or draft to pass the barrels, which would be filled in the evening and have the covers saturated with water, this will make and retain cool water.

If you have a field ice-box it should be elevated four or five inches and attached to the drip hole a rubber hose inserted in a dug-out gutter long enough to conduct the water to a sloping ground, thus preventing the accumulation of mud around the box.

Having no field ice-box, the following will act as a substitute: a hanging cabinet can be made by an artificer with a frame three or four feet cube, screened on all sides, with a door and suspended by four ropes attached to the top corners and tied together in the top center of the main rope. This cabinet should be hung in the shade on a hook protruding from an inverted hollow cone, which is hung from a tree or standard and filled with grease or oil, so as to prevent insects from crawling along the rope into the cabinet. A current of air will circulate through the contents of the cabinet, and the same will be proof against flies and insects.

To give the cooks a rest, particularly in a warm climate, an easy breakfast can be prepared with beans as follows: prepare beans same as for the stove, dig a trench about eight inches deeper than the utensil and about eight inches wider on the sides of cooking kettle. Build a good fire in the trench and let it burn to hot coals, remove about one-half of these coals and place the kettle with lid tightly on in the trench on the remainder of the coals, then heap the hot coals you have removed around the sides and over the top of the kettle, cover with earth and an old blanket or poncho. Wood used for fuel should be heavy. The

above is prepared in the evening and will be nicely cooked and ready for breakfast.

I hope the day is not far distant when chocolate will be considered as a component of the ration on account of its being regarded so highly for its nutritive strength, and I believe it is worth serious consideration.

Portable ovens are not issued for the baking of bread. Improvised ovens as a substitute can be constructed by the simple method of placing an empty barrel on its side depressed about one-fourth, knock out one end and plaster the barrel over with from six to eight inches of clay and then cover with an equal thickness of earth. A flue of clay is constructed at the closed end of the barrel, which is then gradually burned out, leaving an oven of baked clay. If the ground is marshy make a bottom hearth of stones filled in with clay. If clay banks are handy an oven may be dug out of the bank, fire made therein, clay baked. Another form of oven is as follows: Dig a hole about two feet deep, build fire, keep it burning until the hole is full of hot ashes and then put what is to be cooked or baked in covered pans placed in the hole and covered with the hot ashes on top of which keep fire burning briskly, vent holes to be made in the direction of the wind.

The baking of bread is very important and few cooks can accomplish it; if poorly baked bread is issued it creates great suffering and is a handicap. Hard bread is far superior and is very easily carried and it is very nutritive, although even with the regulars, as well as the militia, it is very unpopular, which makes it more important and essential to give this (bread) component of the ration the important consideration which necessity demands.

The fireless cooker will be an important part of the cooking of the future, particularly in traveling, as a fuel saver, only requiring a small amount of fire, also in the course of cooking there is great advantage in the slow process of finishing the cooking without fuel. There is not the usual loss through evaporation as with the old method on the fire. There is less work for the cooks, which means better food. At the noon mess supper can be prepared from the same fire and before night breakfast can be prepared without the enemy noticing the fire. A fireless cooker could be made by inserting the cooking utensils in a box made self-retaining of the heat by means of packing old blankets or other material so it can be made non-conductive of the heat, the same can be placed in the rear part of a wagon

and the mess be ready without further cooking and preparation. The same contrivance could be used for making and keeping water cool.

I would suggest the consideration of making a combination fireless cooker and self-retaining heat stove vehicle covered with non-conductive substance, with portable handles so that two men could carry it or use as a vehicle upon two wheels. My object in having it non-conductive is that the cooks would not suffer so much from the external exposure of heat which is lost. This same heat retained would require less fuel, say, after evening mess large percentage of heat retained would help greatly in cooking after the breakfast had been prepared, similar to the fireless cooker advantage. The stove could be easily handled for transportation, not hot after use, if the roads are muddy by being placed in the rear of a wagon (after removing the wheels from the cooker) or as a vehicle hitched to the rear of a wagon.



THE TRANSMISSION OF MILITARY INTELLIGENCE.*

BY LIEUT.-COLONEL GEORGE P. SCRIVEN, SIGNAL CORPS, U.S.A.,
CHIEF SIGNAL OFFICER, DEPARTMENT OF THE EAST.

GOLD MEDALIST, M. S. I.

THE RELATION OF THE SIGNAL CORPS TO THE COAST ARTILLERY.



THE lines of information within artillery districts are of two general classes; first, those which relate to fire control and direction proper; and second, those which serve primarily as lines of intelligence and have only incidentally to do with the laying of the guns. The first of these systems have been so often and fully discussed that it is unnecessary here to more than outline the present installations. An additional reason for brevity also lies in the fact that, like all undertakings of considerable magnitude which depend upon electricity and the electrical and mechanical appliances of the day in a new and important field of endeavor, the fire control system adopted cannot yet be said to have assumed its last and permanent shape; and, in addition, fire control and direction are a function of the coast artillery alone; by whose officers its systems have been devised, are used, and as now understood will be maintained. The installation and types of instruments alone pertain to the signal corps of the army as certain other essentials pertain to the ordinance and engineer departments.

The term fire control as here used is not only technical but conventional, it therefore seems well to premise that the expression is defined by its limitations as including the "Exercise of all such technical and tactical functions of command, supervision, control and direction, as may be necessary to insure an efficient defense."†

In order to make clear what follows, however, it is well to add that‡ "An artillery district, as a tactical unit, is a subdivision of the coast line, including the personnel assigned to the duty in connection with the fixed defenses thereof." "A battle command includes the armament that covers a water

*Concluded from March JOURNAL.

†See Signal Corps Manual No. 8; and Fire Control and Direction, by Captain Hearn, Artillery Corps.

‡Drill Regulations for Coast Artillery (Provisional).

area within which a naval attack may be expected and over which one man may exercise efficient control of the artillery fire action that may take place therein, together with all the material accessory to the service of the armament, the personnel assigned thereto, and the submarine defense connected therewith." "A fire command consists of two or more batteries, not in general exceeding four, so located that their fire covers the same or contiguous water areas and that they can be readily commanded in action by one man." "A mine command consists of such portion of the submarine defense and rapid-fire guns for the protection thereof as may be efficiently controlled by one man." "A battery is a group of guns or mortars of the same caliber and power, with the position-finder stations provided therefor and with the personnel assigned thereto. Under exceptional circumstances a single isolated gun, with its station and personnel, may constitute a battery."

It is unnecessary here to enter into a consideration of the part played by signal-corps installations in the defense of fixed positions or to attempt to describe in detail the instruments, often highly complicated, that have been devised for the service of fire control. Suffice it to say that what follows applies only to fire-control systems that are permanent in character, which from their extent and importance can only be properly installed during the leisure of peace.

Turning now to the duties imposed upon the service of lines of information, by the foregoing definitions and their requirements, it appears, that, in ordinary language, fire-control requirements demand: First, that the battle commander's station shall be so equipped as to communicate electrically with district, fire and mining commanders, and with the searchlights assigned to the station; that the fire commander's station shall be so equipped as to communicate with the battle commander and with each primary battery of his command; with his secondary station (if existent), when the fire command is a mortar battery communication shall be provided with his battery commander and with the booths, and (if existent) with the other mortar primary station; that the mining commander's station shall be so equipped as to communicate with the battle commander, the secondary station, mining case-mates, loading room, and with the rapid-fire batteries and illuminating lights assigned to the mining command; that the primary stations shall be so equipped as to communicate with the fire

commander, battery commander, each battery emplacement and secondary station (where primaries exist for six-inch batteries, without base line, communication with each emplacement, battery commander and fire commander only, is provided); that secondary stations shall be so equipped as to communicate with their primary stations only. Mortar batteries are usually provided with more than one base line to cover different portions of the range zones, and special apparatus must be installed so that the different stations can be connected as demanded by the progress of the action.

A post-telephone exchange similar to small commercial offices is provided as a part of the fire-control system installed by the signal corps. This exchange connects not only such stations as are necessary in post administration, but such fire-control stations as the tide and meteorological, battle, fire and mining commands, power-houses, and others needed in service.*

In addition, the writer is of the opinion that the district commander's station and that of each battle commander within the district should be connected by telegraph with each other and with the outer world. Of course, as will be seen later, the district will be provided with wireless and signal stations, which may at times be used in fire control, and will be connected by direct telephone service with the district commander's station, or with the battle commander's station.

To establish the communications above noted, the signal corps provides telephones of special types, the telautograph, the telegraph; electrical appliances for indicating time intervals; for the collection of meteorological and tide data, range zones; and, necessarily, a network of wire and cables of many types, which in larger installations extend into intricate systems requiring the best efforts of highly trained electricians to construct. These multiply with their distances from centers of control; they are not run haphazard between stations but follow the tactical organization of the defense itself.† The key of the system is the switchboard room, but the details of this need not be discussed here, nor an attempt be made to consider the instruments and equipment furnished. The instruments have

*See sketch of an imaginary coast position prepared to resist attack.

†For the more technical electrical details of these and some of the other electrical work involved in fire-control installations, attention is invited to appendix, for which the writer desires to express his thanks to Mr. L. R. Krumm, Assistant Electrical Engineer, Signal Corps, to whose well-known ability and detailed knowledge of the electrical installation much credit is due.

been devised, first, with regard to reliability in operation, and second, with regard to strength and durability, and are believed to be excellent of their kind. In service, the most important is the telephone, which is to fire control what the buzzer is to field communications; that is, the main reliance of the system. However, the telephone is far less reliable in coast defense than is the little field instrument in campaign; and in the excitement and din of heavy artillery fire it seems probable that officers and men near the guns will have difficulty in hearing, and can seldom be certain of what they do catch of the messages conveyed by telephone. Still, nothing now known can take its place. The telegraph—best and most certain of all signaling, is too slow—and nothing else is worth considering except the telautograph, which, though promising, has, as now constructed, faults of its own that make it far from satisfactory as a principal instrument of the communications. Telautograph lines are, however, established between primary stations of batteries and the guns for the transmission of ranges, azimuths and information. An advantage of the telautograph is that it not only records to the eye, and unmistakably, the message as sent, but also gives a permanent record. The telephone does neither unless all advantage of speed is lost by recording and repeating the message. It is to be hoped, however, that a system of light signals, like those now used in connection with the mortar zones, or perhaps some form of recording telegraph, a new type of which is now made and understood to promise well commercially, may yet be devised that shall give the speed and certainty needed in fire-control service. Tide and meteorological data are conveyed by the aeroscope, though this gives in its present form a somewhat unnecessary amount of detail; and to synchronize observations of the target and gun fire, time intervals are marked by electric bells placed in the circuits of master clocks. These complete all that need be said in a general survey of instruments used in the fire-control system installed by the signal corps. The system is not perfect, but it is believed to be the best and most efficient method yet devised by any country for fighting the guns of fixed positions.

In regard to the importance of lines of information in fire control it will be sufficient to point out that,* “Under the present state of development the battle commander conducts the fight of the defense, while technically under the orders of the district

*From the valuable pamphlet of Captain Hearn already referred to.

commander. He issues his orders to his fire commanders and his mine commanders * * * from information furnished by the district commander, from reports of his scouts and outposts, and from his own personal observation he decides as to what part of his command he will employ." Again it is said, "The fire commander, having received orders from the battle commander to open fire on vessels designated, issues his orders, in accordance therewith, to his battery commanders, directing what batteries are to fire and indicating the target for each battery * * * He controls the beginning and the ending of the firing, and the number of shots fired by each battery. He distributes or concentrates the fire according to the demands of the action. * * * He may decide to concentrate all batteries on the same target, or certain batteries on two or more targets. He must decide, according to the progress of the action, as to the manner of employing the units of his command."

"The mine commander is normally at his primary station and fights his command from this station, which is equipped with the usual instruments of communication."

Brief and seemingly simple as this appears, it should nevertheless be remembered that the information upon which the fighting methods are based must be collected from many scattered sources and be transmitted instantly over land and sea to centers of control; and that the orders governing the action must be sent over wide areas which only signals can traverse in time. It follows that when fighting his position the battle commander and his subordinates are at least as dependent upon lines of information as is a general commanding in the field, for without the telegraph and telephone, the cable and electrical appliances, not only is concert of action lost in coast defense, but at times also the power to find and stop the enemy.

The work of installing the fire control is now performed by the signal corps of the army, and many of the types of instruments used have been designed or adapted by the corps. When completed, fire-control systems are turned over to the artillery arm, by whom, it is now understood, they will be maintained. But the systems are extensive and complicated and maintenance will be an important and expensive affair requiring the efforts of a considerable body of trained and expert electricians, who can be obtained only at salaries far above those given to enlisted men of the army. A little consideration of the ideal sketch sub-

mitted will serve to illustrate further the lines of information now employed in coast defense.

It remains now to consider the systems of communication that are properly

LINES OF INFORMATION OF ARTILLERY DISTRICTS.

In addition to the fire-control systems there must exist both within and without artillery districts certain lines of information, whether electrical or visual, by means of which artillery headquarters are kept in touch with the interior of the country and with centers of control; and the factors and elements of the defense are brought into co-ordination; fixed positions connected; and the district bound into a whole under control of its commander, as an army in the field is linked together and maneuvered by its general. These systems form the lines of information proper of artillery districts; but between them and those of the fire control it is evident, from what has gone before, that no sharp line of demarkation can be drawn, since each may be used in both capacities.

It will be remembered that the artillery districts scattered along the coasts of the United States are twenty-four in number. They are, as a rule, separated from each other by considerable distances, and each headquarters is kept in touch with the others electrically mainly through the commercial systems of the country; but the commercial systems are, of necessity, frequently supplemented by military lines which extend them to artillery headquarters. Within artillery districts, the various posts may, or may not, be reached by commercial systems, and, indeed, even district headquarters, when placed on coast islands or at other isolated and scantily peopled localities, from which the money returns would be small and the expense of installation and maintenance of land lines and cables would be great, are dependent at all times upon military lines of information for communication with the outer world as well as with the fixed positions themselves. Even in peace it is not probable that these conditions will change in regard to isolated posts; unless, indeed, the government is prepared to alter its present wise policy and offer a bonus to private companies for the construction and operation of electric communications, a plan that would be expensive in peace and inefficient in war, since lines of information important to and near by military positions must certainly in

war be under the control of soldiers alone. As to interpostal lines it is neither desirable nor practicable that they should be under civil control at any time.

In general, artillery lines of fire control and of information will, in peace, be permanent in type (except the field lines necessary in maneuvers); but in war to permanent lines will be added a network of temporary systems as flexible and extensive as need be, and in character resembling those of an army in campaign; more limited in extent, perhaps, but based on more stable conditions and consequently easier to install and maintain against interruption by an enemy except in the case of the wireless; and if interrupted more easy to repair, since the material for repair should always be at hand at the fixed positions. But as with lines of information in the field those of the coast defense, both permanent and temporary, must be certain and speedy. They will be more complicated and varied than is possible with the former, since they imply, in addition to land lines, systems of information extending both under and over the sea, and include in their scope every known method of transmitting intelligence from the wink of the Ardois, the flash of the search-light, the tick of the telegraph key or call of the buzzer; to the writing of the telautograph and the message of the long distance wireless and the wireless telephone.

With the permanently laid lines of the coast defense transmission should, of course, be as efficient and satisfactory as in civil life if the systems are properly installed and skilfully operated in practice; but in order to secure these results it is evident that the ponderous permanent systems of the fixed defenses, both fire control and information, cannot be thrown out in an hour like the wires of a marching army, but must be carefully planned and constructed in advance during the leisure of peace as the defenses themselves are planned; must progress to completion with them, and when in place must be proof against reasonable probability of interruption.

When installed the permanent systems of coast defense must be kept in serviceable condition, which means constant work and incessant renewal of material, and will demand a yearly expenditure estimated at eight to ten per centum of the original cost. In addition to this cost, however, an allowance must be made for annual depreciation of probably ten per centum, thus making the total cost of maintenance and depreciation not less than eigh-

teen percentum of original cost for the satisfactory operation and maintenance of fire-control installations.

The permanent systems of artillery districts consist of wire and cable lines, and station for the transmission of aerial messages. These lines will center in general at the station of the district commander and radiate therefrom to each post commander's station within the district; that is, they will terminate at the battle or fire commander's station of the various posts. In addition wire or cable lines (or both) will extend from the district commander's station to the most convenient points of commercial systems through which may be reached the headquarters of other artillery districts; and, when established, of the zone defense of the mobile army; of the coast patrol; of the general commanding and other important centers.

Temporary lines will, of course, be installed only when demanded by the exercises and maneuvers of peace or by the exigencies of war; nevertheless, the means of providing them should be at hand within each artillery district; so that when needed field telegraph and buzzer lines may be laid easily, quickly and without confusion from district headquarters to the supports, zone troops, and to headquarters and observation stations of the coast patrol; the telegraph and telephone wireless sets and visual appliances will be in readiness for use in the exchange of signals between the fixed positions and coast-defense ships, patrol, picket boats, and scout ships; as well as with torpedo planters and the cable-ship when necessary; and with the Navy. The field telephone should be ready to tell its story from observation stations and captive balloons to district headquarters and centers of defense; and possibly the dirigible air-ship should be at hand to write, by flag or light, against the sky its message from over land and sea. Thus the temporary lines of artillery districts will include many aerial systems, and even the permanent communications will not be electrical alone. Both will depend largely upon the auxiliary, but still very important, class of visual and aural signals, which before the introduction of the wireless telegraph were the only means known of exchanging ideas without material connection. Visual signaling is probably more important in coast defense than with the army in the field and is vital when communication is needed between ships and shore and the wireless is silent. Whether or not all the signal apparatus above outlined will be used by the defense is another matter; still the possibility exists,

and the fact remains, that opportunity should be given those who have control for the use of every method of transmitting information that may prove reasonably valuable. To do this it is necessary that signal appliances of all useful kinds be stored in depots within artillery districts, in addition to the material required for the emergency repair of permanent systems.

In war the headquarters of each artillery district, even more than coast patrol stations, will become a nucleus of intelligence regarding events at sea, and therefore the service of information in and from these districts should be as perfect as it can be made. The means of transmission should be the best known, and the men who use and maintain the lines the most efficient that can be selected for this special work. It seems, therefore, not too much to say that the men entrusted with the transmission of information of the coast defense should be soldiers trained in the work of the signal corps of the army, and familiar with its instruments and methods.

Many further details concerning lines of information of the coast defense might be discussed here, but space forbids, and it remains merely to note that the acknowledged importance to the defense of the wireless telegraph and perhaps of the wireless telephone, and the possible value of the dirigible air-ship, are leading to much effort and experiment on the part of the signal corps. In connection with the wireless excellent practical results have been reached, which have been noted in this paper; and as a consequence, it is hoped that there will soon be on hand a supply of portable wireless sets suitable for small coast stations and for boat service, and other sets of greater power for shore signal stations to be established within artillery districts. The structures planned in connection with these instruments are of two types, called

DISTRICT AND POST SIGNAL STATIONS.*

The district signal station is intended as permanent, and will be complete in itself. One such is to be established in each artillery district at that post best suited for its use a condition largely dependent upon outlook, suitability for wireless work, and reasonable protection against capture or destruction.

*See frontispiece, signal station, Fort Wood. A 1 K.W. is practically completed at Fort Hancock, which differs from that at Fort Wood chiefly in the fact that an existing structure is to be used as a signal station.

The district structure is intended to contain one I-K.W. wireless set with the necessary power plant, pole and antenna, giving a practical range of, say, ninety miles; to this will be added telephone connection with the post exchange through which all points of the district may be reached. The pole is so arranged that from it the Ardois signals and International code flags may be displayed and from an elevated platform night signals, winker lights, the wigwag and visual signaling of all kinds used. In addition, the wireless telephone will probably be installed, and telegraph communications may be provided to military headquarters and commercial systems. A substantial house, constructed by the corps of engineers, provides the necessary office, lockers for flags and quarters for a signal detachment of six men, or more when necessary.

Post signal stations are similar to those of the district but smaller and with less range; they will be placed at one or more of the posts within artillery districts, and be provided with the necessary apparatus for interpostal communication; but will ordinarily use only small portable wireless sets. Both types will be signal stations proper, manned by a sufficient number of signalmen to form two reliefs; and there seems no reason why a balloon plant and its accessories should not be established and maintained in war at each artillery district near the signal stations and a proper force of signalmen detailed for this service.

One other auxiliary of the signal corps remains to be mentioned in connection with the defense of artillery positions, and that is the cable-ship, without which, both in peace and war, it will be impracticable to maintain the cable communications, either of the fire control or of information.

In conclusion it may be said that to properly serve and maintain the lines of information alone of artillery positions without taking into consideration the fire-control service, will require both in peace and war the attention of a considerable force of men whose duty shall be first and always to the communications, and it should appear, considering the technical duties these men are called upon to perform and the experience needed by them, that a suitable detachment of signal men must be maintained at every artillery district, and that the service this detachment will be called upon to perform should not be shared by others whose first duty will be to the guns or other elements of the defense. The work of installing the lines of intelligence within artillery districts is performed by the signal corps of the

army, but the maintenance of the systems as a whole is at present divided between the signal corps and the artillery, and no satisfactory method of procedure has been established, in the opinion of the writer. The problem of maintenance has already arisen, and as the present solution is general, the following definite suggestion is offered when the strength of the signal corps permits: That in each artillery district there be assigned in peace a detachment of signal men of the army of such strength as the exigencies of the service may require; (say) fifteen men to a district, made up of three or more artillery posts, these men to be ordinarily stationed at district headquarters, but sent wherever needed throughout the district to repair and maintain lines of information; that the signal detachment be placed under the immediate command of an officer of the signal corps—a lieutenant or captain—who shall be on the staff of the artillery district commander, and directly under his orders, as is the artillery engineer, or as a signal-officer in the field is on the staff and under the orders of a commanding officer, or of a department commander in peace; that the signal-officer be responsible for the condition of the lines of information of the district and for the transmission of information; and furthermore, that he and the men under his control be required to assist in the training of the signal men of the organized militia when called out for exercises or maneuvers in peace, and to organize and direct the signal men of the militia when summoned to the coast defense in war; that this signal-officer and his men have charge, under the direction of the district commander, of the service and maintenance of lines of information, but confine this work in connection with the fire-control system of the district to such duty as the district commander may direct in connection with land lines and cables when the assistance of the signal corps cable-boat and her trained crew of both soldiers and civilians becomes necessary.

In offering this solution of the problem of maintenance of artillery lines of information the regular duties of signalmen are purposely confined to the use and maintenance of these lines alone, since the fire-control systems are in the hands of the artillery; but it is believed that if a wise policy compels the presence of a number of signalmen, operators, linemen and the like for telegraph, telephone and wireless service in connection with the lines of information or intelligence alone, as seems probable, a still wiser policy of administration suggests

that these detachments be utilized to the fullest extent by giving to the artillery commander the authority to use, not merely in connection with lines of information, but in the care and maintenance of the great and costly systems of fire control as well, the signal men under his command, together with the civilian electricians and cable men whom it is the policy of the signal corps to engage for its technical work, as the civilian employees of the engineer department are engaged.

In making the above suggestion,* it is, of course, presumed that the authority of the artillery commander will be exercised through the signal-officer of his staff, who will be responsible for his work to the chief signal-officer of the army as well as to the artillery commander, as is a signal-officer in the field.

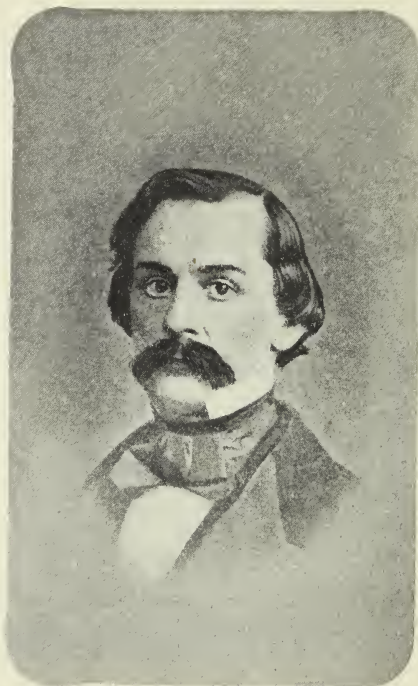
In this and foregoing papers which the JOURNAL OF THE MILITARY SERVICE INSTITUTION has done the writer the honor to publish, an effort has been made to outline the more important work of that branch of the army which is charged with service of the military lines of information, that is, of the signal corps.

Imperfect as the result of this effort is, it will not have been wholly in vain, if it serves to emphasize the steadily growing value to the army of lines of military information. The subject is as broad as it is important; but divides itself naturally into two widely separated branches, each of which is essential to the military service of the country and vital to its safety. They are: First, The lines of information of the mobile army in maneuver and in campaign; and second, the lines of information of the national coast defense in the exercises of peace and in the exigencies of war. It is useless to attempt to weigh the relative value of these two branches of the service of the transmission of information; they constitute the field of duty of the signal corps of the army, and it follows that the signal corps

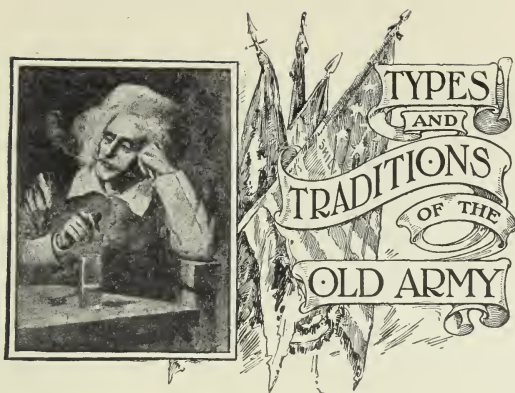
*The suggestion is due to an artillery officer of rank and experience, and is thought to be in the interest of economy and efficiency, provided the signal corps is able to supply the necessary officers and men, and the artillery corps approves the plan. The last appears probable, for the electricians and other enlisted men of that corps will presumably have enough work in other directions, without caring for *electric communications* in addition. Besides this, it is very improbable that enlisted men of the army, no matter in what corps they serve, with the exception of a few, will have sufficient electrical knowledge and mechanical skill to maintain and repair the more complicated electrical system now installed, and that a higher order of acquirement must be secured from civil life and paid accordingly. In other words, at each artillery district an electrical expert, such as those now paid by the signal corps, must be engaged by somebody for the maintenance of both fire control and information services; it is a necessity imposed by present conditions and must be so accepted.

of the future will be called upon to cultivate not one but two fields of duty, equally important but very different in character, either one of which will demand the best efforts of a force of special troops far larger than now provided by law. This force will no doubt grow in size and importance as military organization improves, but it is useless to hope that in peace a full measure of preparation for war will ever be granted to the signal corps of the army, or indeed to any branch of the regular establishment or of the organized militia. With the people of the United States deep planted indeed is the belief expressed of his own country in bygone days by one of the greatest of French writers: "Thrice fortunate land, where the ground has only to be struck in the name of the nation, * * * for armies to immediately rise from it, as though by magic."





BVT. LIEUT.-COL. E. J. STEPTOE,
Major Ninth Infantry.



THE STEPTOE-WRIGHT CAMPAIGN AGAINST THE NORTHERN INDIANS IN 1858.

I.—BY LIEUT. (AFTERWARD COLONEL) LAWRENCE KIP, U. S. A.*



THE month of May was a disastrous one for the army on the Pacific. On the 8th, Colonel Steptoe set out for Fort Walla Walla, with a small command of 159 men, to make a reconnaissance of the country, to examine into affairs at Fort Colville and to seize some marauders belonging to the Pelouze tribe, who had stolen some cattle from the fort. As this is a feeble tribe, his force was considered sufficient to overawe them, while the more powerful tribes

through which he was to pass had always professed freindship, and there had been as yet no reason to distrust them.

On the morning of the 16th, however, after passing Snake River, he found himself unexpectedly in the face of a force estimated at from 1000 to 1500 Indians. They were Spokanes, Pelouzes, Cœur d'Alenes, Yakimas and warriors of the smaller tribes, all painted and all in their war dress, evidently meditating an attack. The hills around were covered with them, and it being evidently impossible under such circumstances to penetrate into the country, it became necessary for his little command to return and endeavor to make good its way back to Snake River. The train was therefore closed up, and a retrograde move begun. The moment this was done, the attack commenced, and the fight was kept up through the whole day. Most of the men, too, were new recruits who had never before been under fire. Yet everything that could be done by the officers was accomplished. It was a

*Extracts from "Army Life on the Pacific," N. Y. Redfield, 1859.

series of gallant charges, driving the Indians back with loss, to have them after a brief interval close up again around the troops.

Night at last settled down upon the battle-field and found the little command perfectly exhausted, and with their ammunition almost gone. Two officers—Capt. Oliver H. P. Taylor and Lieut. William Gaston, both of the First Dragoons—had fallen with a number of the men. The remaining were gathered in a rising ground, while every hill around swarmed with their exulting enemies, who seemed to have them now completely in their toils. A consultation of the officers was hastily held by Colonel Steptoe, at which there was but one opinion. The force against them was overpowering, and by the next morning would undoubtedly be still further increased; without ammunition they would be almost defenseless—and it was evident that, long before the close of the next day, not one of the command would be left to tell the story of their fight.

Nothing remained, therefore, but to attempt a retreat during the night. The bodies of the fallen, which were within their reach, were buried, the two howitzers were cached and the command mounted and struck off in the direction of the Snake River. Fortunately, the Indians did not make a night attack and their retreat was unimpeded. Still they knew that the morning would bring their foes upon their track, and therefore they pressed on. They rode seventy-five miles by ten o'clock the next morning and succeeded in crossing the river without further loss of a single man or even an animal belonging to the command. Here Colonel Steptoe was met by Captain Dent, who, having received intelligence of the ambush, was advancing by forced marches from Fort Walla Walla to his rescue.

* * * * *

Such is a brief history of this unfortunate affair. I have recurred to it, because it is appropriately the opening chapter of the campaign and indeed the cause and origin of all our operations through the ensuing season. In the newspapers, too, many of which are always ready to decry the Regular Army, the greatest injustice has been done to this gallant little party. Surprised by an overpowering hostile force, they fought it out gallantly as long as fighting was practicable, and then made their retreat without any additional loss.

The Indians of those Northern tribes are the most bold and war-like on the continent. Splendid specimens of physical humanity, they are skilful in the use of arms, and accustomed from childhood, almost, to live on horseback. They have seen but little of the whites, except a few straggling miners, who during the last year may have passed through their country, and the employees of the Hudson Bay Company, from whom they purchase their muskets and ammunition. For years it has been the object of the latter to inculcate upon them reverence for themselves, and a proportionate contempt for the Americans. The fight with Colonel Steptoe, of course, confirmed this impression and brought



OLD FORT WALLA WALLA.

out all the smoldering feeling of hostility which had been excited before by the fears of the future encroachment of the whites. In fact, the attack on Colonel Steptoe was probably produced by the news they had received of Lieutenant Mullan's party being on their way to survey and lay out a military road through their country. This they regarded as the first step in taking possession of their lands.

The result was natural. At once a league was formed of all of the most powerful tribes—the Spokanes, Cœur d'Alenes, Pelouzes and Yakimas, with a portion of the Nez Percés—a general outbreak took place, small parties of whites were cut off in every part of the country, and even the safety of Fort Walla Walla was threatened. The Indians became everywhere bold, defiant and insulting.

We reached Fort Walla Walla July 19th, after a march of twelve and a half days. The fort is almost on the ground of the Walla Walla Council, which I attended three years ago, when those tribes we are now to fight were all represented, and their great leader, Kamaiken, was himself present. It is in a beautiful spot of the Walla Walla Valley, well wooded and with plenty of water. Ten miles distant is seen the range of the Blue Mountains forming the southeastern boundary of the great plains along the Columbia, whose waters it divides from those of Lewis River. It stretches away along the horizon until it is lost in the dim distance, where the chain unites with the Snake River Mountains.

At this post are stationed four companies of the First Dragoons and two of the Ninth Infantry. The dragoon officers are Major Grier, Lieutenants Davidson, Bender, Gregg and Wheeler. The infantry officers are Colonel Steptoe, Captains Dent and Winder, Lieutenants Fleming and Hardie. Besides these are Captain Kirkham, quartermaster, and Dr. Randolph, surgeon. The dragoon cantonment and the infantry post are about a mile apart, and we are encamped between them.

One of the first persons who came into camp to see us was a Cayuse Indian, Cutmouth John, who was Lieutenant Grace's guide through this country three years ago, when I accompanied him on his march with a detachment of the Fourth Infantry, to act as escort to Governor Stevens at the Walla Walla Council. This worthy had a dreadful distortion of visage from having been shot in the mouth in a fight with the Snake Indians, and hence his sobriquet. He once lived with Dr. Whitman, physician to a Presbyterian mission which existed for a time near Walla Walla, and when the doctor and his family (seven in number) were cut off in 1847, he defended them as long as possible and received at that time his wound.

* * * * *

Colonel Wright, who is to take command of the expedition, has arrived, and drills and reviews are going on as usual. The Third Artillery drill twice a day in light infantry tactics, except Major

Wyse's company, which practices at artillery drill, mounted battery, mules being used for horses.

August 1st.—Colonel Wright and staff this morning reviewed all troops, each corps separately. The expedition will consist of about 700 men, while about a hundred will be left to garrison Fort Walla Walla, under Colonel Steptoe.

Colonel Wright has had a talk with the deputation of the tribe (Nez Perces), and made arrangements by which they have become our allies. This will have the effect of withdrawing some 1700 Hudson Bay muskets from the ranks of the hostile Indians, though we understand there are some discontented lodges among the Nez Perces which will unite with them. Still the great body of the tribe will probably be faithful to their pledge. A party, too, is to go with us to act as guides and scouts. At night they had a spirited war-dance to celebrate the forming of this alliance.

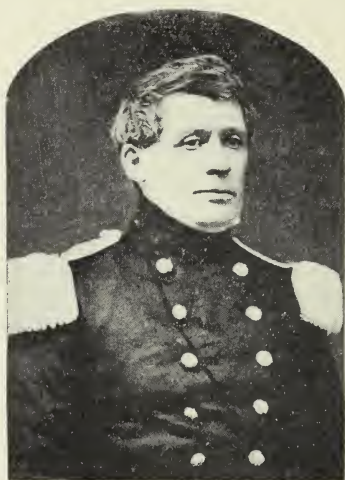
* * * * *

August 11th.—This morning Lieutenant Morgan and myself were detailed with a party of sixty men to cut a road to Snake River, which we accomplished by three o'clock in the afternoon. The command was then marched down and encamped on the river.

While working on the road, about half-way to the river, we heard musket shots ahead, and thinking that the hostiles might have crossed the river and driven in our pickets, Lieutenant Morgan ordered me on with ten men to support them. On reaching the river I found that some Indians had crossed to our side, and, on returning, had been exchanging shots with our sentinels. At the same time a small party appeared on the opposite bank, but a single volley from our men caused them to wheel their horses and ride off.

* * * * *

August 13th.—To-day a Roman Catholic priest, who belongs to the mission in the Coeur d'Alene Mountains, came to our camp. As the "black robes" can pass to and fro uninjured among the different tribes, he was sent by General Clarke to the Spokanes and Coeur d'Alenese to announce to them the terms on which he would make peace with them. The answer which they sent back to the general was exceedingly bold and insulting. They said "that the whites were always talking of war, and the first to propose peace; that the Indians were ready for war and did not wish peace, but a war of extermination." It is evident that their late success has rendered them perfectly defiant. They warn us, that if we cross Snake River, we shall none of us live to cross back. Dr. Perkins, who was at Fort Colville (the Hudson Bay Company's post) shortly after the battle with Colonel Steptoe's command, in his narrative, says: "The sword of poor Lieutenant Gaston was waved in my face by the Indian who had taken it from him at the time of Steptoe's defeat. The saddle of Captain Taylor was also shown to me, covered with his blood. These things the Indians displayed with exultation,



COLONEL GEORGE WRIGHT,
Ninth United States Infantry.

saying that the white soldiers were women and could not fight, and the more that should be sent into that country, the better they would like it, for they would kill them all. They seemed to be very much elated, and were confident that the United States troops could not stand before them. The old chiefs told us they were going to fight until they died; they had plenty of arms, ammunition, provisions and everything they wanted; and when their ammunition gave out, they would poison their arrows and fight with them." Such is the temper of the enemy, to whom we are to teach a different lesson."

* * * * *

As soon as we have crossed Snake River, the Indians will regard us as having "passed the Rubicon" and being in their territories. Then the campaign will begin in good earnest.

Our transportation consists of six mules to a company and a mule to each officer, besides the 325 mules which the quartermaster has in his train. Our entire train, therefore, consists of about 400 mules. Baggage wagons cannot go beyond Snake River. We shall attempt to take only one light vehicle, which Lieutenant Mullan needs for his instruments.

Now as to our fighting force: The dragoons number 190, the artillery 400, the infantry (as Rifle Brigade), 90. Total, about 680 soldiers, besides about 200 attaches as packers, wagon-masters, herders, etc.

Then we have thirty Nez Perces and three chiefs to act as scouts and guides. They were placed under the command of Lieutenant Mullan, but in an engagement he found their individuality developed so strongly that it was difficult for him to induce them to obey orders. Each one was fighting on his own responsibility. These, our allies, have been dressed in uniform, to distinguish them during a fight from the hostiles. Like all Indians, they are particularly delighted with their clothes, and no young officer, just commissioned, thinks as much of his uniform as they do. They insist, indeed, upon having every minute portion, even to the glazed cap-covers.

* * * * *

August 31st.—We left camp at eight o'clock, and marched eighteen miles through a rather level country. Most of our road lay through a cedar wood. On our right were hills running parallel to the wood, and beyond was a rolling country. We had not been out long when hostile Indians appeared on the hills. The Nez Perces rode in and reported to us, when Colonel Wright ordered the column to halt, the pack train to close up in the rear, and two companies of dragoons to deploy toward the enemy. In the meantime the Nez Perces had exchanged shots with them. They retreated as the dragoons approached them. In this way they accompanied us during the whole day, keeping at all times some distance beyond gun-shot. As we afterward found, these small bodies were sent out to decoy our troops on and to deceive them as to the number of the enemy. They had chosen their ground ahead, in a strong

position for attack, where the trail passes through a defile; and there they were awaiting the troops with their whole force.

Just before getting into camp, the hostile Indians rode up near our column, set fire to the grass and fired upon our rear-guard. Their object was to make an attack under cover of smoke, but the grass was too green to burn freely, and the maneuvers of the troops at once defeated their intentions. As soon as the attack was made, Captain Keyes ordered me forward to report the fact to Colonel Wright, who, I found, had got into camp about half a mile in advance. Captain Keyes then ordered Captain Winder's company of rifles to deploy across the rear of the column, at right angles to Lieutenant Ihrie's deployed on the right and Captain Hardie's on the left, and parallel to the column, thus forming a rectangle about the train. The Indians retreated after firing, and took their position on the hills on the right, overlooking our camp, where they remained until dark. We knew that their main body could not be far distant. The prompt movements of the troops on this occasion showed that they were prepared for any emergency.

* * * * *

September 1st.—This morning, at daylight, we found the Indians increased in number, still posted on the hills overlooking us. Their manner was defiant and insolent, and they seemed to be inviting an attack. At eight o'clock orders were issued to have the artillery battalion in readiness, as it might be called out at any moment. Shortly after, the dragoons, four companies of artillery, the howitzer battery, under Lieutenant White, and the two companies of rifles were ordered out to drive the Indians from the hill and engage the main body, which we ascertained was concentrated beyond it. They were formed into two columns, one of dragoons, numbering 100, the other of artillery and infantry, about 220 strong.

One company of artillery, under Lieutenants Gibson and Dandy, a detachment of dragoons and the guard, consisting of about fifty men, under Lieutenant Lyon, officer of the guard, all under command of Captain Hardie, the field-officer of the day, were left to defend the camp. As we did not know the strength of the enemy, and had 400 mules and extensive stores, it became necessary to leave this force to guard the camp, lest it should be attacked in the absence of the main body.

After advancing about a mile and a half, we reached the hill and prepared to dislodge the enemy from it. Major Grier, with the dragoons, marched to the left, while the party of our Nez Percés, under the direction of Lieutenant Mullan, wound round the hill and ascended at the right. The main column came next, with Colonel Wright and staff at its head, followed by Captain Keyes, commanding the artillery, the Third Artillery, the Rifles and the howitzer battery.

As soon as the dragoons reached the top of the hill they dismounted, one-half holding the horses and the others acting as skirmishers. After

exchanging a volley with the Indians, they drove them off the hill and held it until the foot soldiers arrived. On our way up, Colonel Wright received a message from Major Grier, stating that the Indians were collected in large numbers (about 500, it was thought) at the foot of the hill, apparently prepared to fight. Colonel Wright immediately advanced the battalion rapidly forward, ordering Captain Ord's command to the left to be deployed as skirmishers.

My place as adjutant of the artillery battalion was, of course, with Captain Keyes. We rode to the top of the hill, when the whole scene lay before us like a splendid panorama. Below us lay "Four Lakes," a large one at the foot of the barren hill on which we were, and just beyond it three smaller ones, surrounded by rugged rocks, and almost entirely fringed with pines. Between these lakes and beyond them to the northwest stretched out a plain for miles, terminated by bare grassy hills, one succeeding another as far as the eye could reach. In the far distance was dimly seen a line of mountains covered with the black pine.

On the plain below we saw the enemy. Every spot seemed alive with the wild warriors we had come so far to meet. They were in the

pinces on the edge of the lakes, in the ravines and gulches, on the opposite hillsides and swarming over the plain. They seemed to cover the country for some two miles. Mounted on their fleet, hardy horses, the crowd swayed back and forth, brandishing their weapons, shouting their war-cries and keeping up a song of defiance. Most of them were armed with Hudson Bay muskets, while others had bows and arrows and long lances. They were in all the bravery of their war array, gaudily painted and decorated with their wild trappings. Their plumes fluttered above them, while below skins and trinkets and all kinds of fantastic embellishments flaunted in the sun-

shine. Their horses, too, were arrayed in the most glaring finery. Some were even painted, and with colors to form the greatest contrast—the white being smeared with crimson in fantastic figures, and the dark colored streaked with white clay. Beads and fringes of gaudy colors



HEAD MAN OF PELOUZE INDIANS.

were hanging from their bridles, while their plumes of eagles' feathers, interwoven with the mane and tail, fluttered as the breeze swept over them and completed their wild and fantastic appearance.

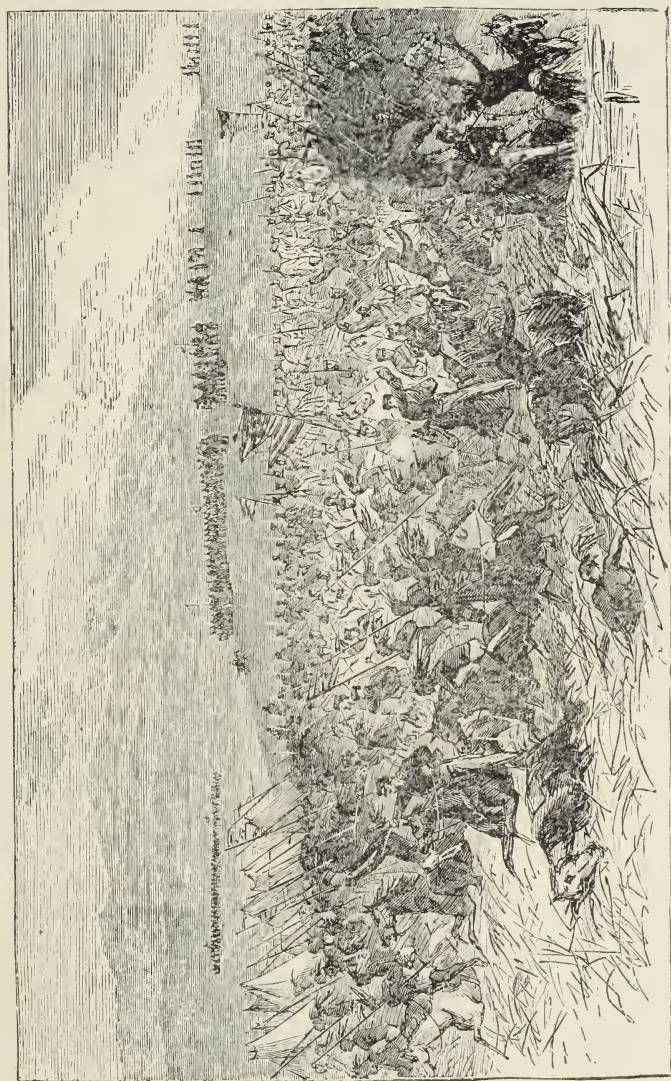
By heavens! it was a glorious sight to see
The gay array of their wild chivalry.

But we had no time for mere admiration, for other work was in hand. Orders were at once issued for the artillery and infantry to be deployed as skirmishers and advance down the hill, driving the Indians before them from their coverts, until they reached the plain where the dragoons could act against them. At the same time Lieutenant White, with the howitzer battery, supported by Company A, under Lieutenant Tyler, and the Rifles, was sent to the right to drive them out of the woods. The latter met with a vigorous resistance, but a few discharges of the howitzer with their spirited attack soon dislodged the enemy and compelled them to take refuge on the hills.

In the meanwhile the companies moved down the hill with all the precision of a parade; and as we rode along the line, it was pleasant to see the enthusiasm of the men to get within reach of the enemy. As soon as they were within 600 yards they opened fire and delivered it steadily as they advanced. Our soldiers aimed regularly, though it was no easy task to hit their shifting marks. The Indians acted as skirmishers, advancing rapidly and delivering their fire, and then retreating again with a quickness and irregularity which rendered it difficult to reach them. They were wheeling and dashing about, always on the run, apparently each fighting on his own account.

But Minie balls and long-range rifles were things with which, now, for the first time, they were to be made acquainted. As the line advanced, first we saw one Indian reel in his saddle and fall, then two, three, then half a dozen. Then some horses would dash madly forward, showing that the balls were telling upon them. The instant, however, that the "braves" fell, they were seized by their companions and dragged to the rear to be borne off. We saw one Indian leading off a horse with two of his dead companions on it.

But in a few minutes, as the line drew nearer, the fire became too heavy, and the whole array broke and fled toward the plain. This was the scheme for which the dragoons had been impatiently waiting. As the line advanced they had followed on behind it, leading their horses. Now the order was given to mount, and they rode through the company intervals to the front. In an instant was heard the voice of Major Grier ringing over the plain, as he shouted, "Charge the rascals!" and on the dragoons went at headlong speed. Taylor's and Gaston's companies were there, burning for revenge, and soon they were on them. We saw the flash of their sabers as they cut them down. Lieutenant Davidson shot one warrior from his saddle as they charged up, and Lieutenant Gregg clove the skull of another. Yells and shrieks and uplifted hands



CHARGE OF MAJOR GRIER'S FIRST UNITED STATES DRAGOONS.



MAJOR W. N. GRIER,
First United States Dragoons.

were of no avail as they rode over them. A number were left dead upon the ground when once more the crowd broke and dashed for the hills. It was a race for life as the flying warriors streamed out of the glens and ravines and over the open plain, and took refuge in the lumps of woods or on the rising ground.

Here they were secure from the dragoons. Had the latter been well mounted, they would have made a terrible slaughter. But their horses were too much worn out to allow them to reach the main body. For twenty-eight days they had been on their march, their horses saddled all day and engaged in constant scouting, at night picketed, with only a little grass after camping. They were obliged, therefore, to halt when they reached the hillside, their horses being entirely blown.

Then the line on foot once more passed them and, advancing,

renewed their fire, driving the Indians over the hills for about two miles. As we ascended, the men were so totally exhausted that many had fallen out of the ranks, and Captain Keyes was obliged to order a short halt to let them come up. When a portion had joined, we resumed our march.

The great mass of Indians by this time had passed over the crest of the hill, and when we rode to the top but a few of them were visible. Without again attempting to make any head, they had taken refuge in the woods and ravines beyond the reach of the troops. A single group was seen at some distance, apparently left to watch us, but a shell fired from the howitzer by Lieutenant White, bursting over their heads, soon sent them to seek refuge in the ravines.

For a short time we remained on the hill, but no new demonstrations having been made, Colonel Wright ordered the recall to be sounded, and we marched back to the camp. A number of our men had never before been under fire, but begrimed and weary as they were, we could see in their faces how much they enjoyed the excitement of the fight.

Certainly none could evince better discipline or behave more coolly. We had been absent from the camp about four hours, and had driven the enemy, from the point where the attack was first made, about three miles and a half.

As we rode back we saw on the plain the evidences of the fight. In all directions were scattered the arms, muskets, quivers, bows and arrows, blankets, robes, etc., which had been thrown away by our flying enemies. Horses, too, were roaming about, which our Indian allies were employed in catching. It was amusing to see the troops returning with their trophies. One officer had two buffalo robes and a blanket wrapped around himself and horse.



LIEUT. D. McM. GREGG,
First United States Dragoons.

What the Indian loss was we cannot exactly say, as they carried off their dead. Some seventeen, however, were seen to be killed, while there must have been between forty and fifty wounded. Among those killed, we subsequently ascertained, were a brother and brother-in-law of Garry, the head chief of the Spokanes.

Strange to say, not one of our men was injured. One dragoon horse alone was wounded. This was owing to the long range rifles now first used by our troops and the discipline which enabled them so admirably to use them. Had the men been armed with those formerly used, the result of the fight as to the loss on our side would have been far different, for the enemy outnumbered us and had all the courage which we are accustomed to ascribe to Indian warriors. But they were panic-struck by the effect of our fire at such great distances, and the steady advance of the troops, unchecked by constant fire kept up by them.

The following is a list of the officers engaged in the fight:

GENERAL STAFF.

Col. George Wright, Ninth Infantry.

Lieut. P. A. Owen, Ninth Infantry, Acting Assistant Adjutant-General.

Capt. R. H. Kirkham, Quartermaster and Commissary.

MEDICAL DEPARTMENT.

Lieut. John Mullan, Second Artillery, Acting Topographical Engineer.

Assist. Surgeon J. F. Hosard,

Assist. Surgeon J. F. Randolph.

FIRST DRAGOONS.

Troop I—Brevet Major Wm. N. Grier.

Troop E—Lieut. Henry B. Davidson.

Troop C—Lieut. William D. Pender.

Troop H—Lieut. David McM. Gregg.

THIRD ARTILLERY.

Capt. Erasmus D. Keyes, Commanding.

Capt. E. O. C. Ord, Commanding Company.

Lieut. Robert O. Tyler, Commanding Company.

Lieut. James L. White, Commanding Howitzer Detachment.

Lieut. Dunbar R. Ransom, Commanding Company.

Lieut. George P. Ihrle, Commanding Company.

Lieut. Michael R. Morgan.

Lieut. James Howard.

Lieut. Lawrence Kip, Adjutant Battalion Rifles.

NINTH INFANTRY.

Capt. Frederick T. Dent, Commanding.

Capt. Charles S. Winder, Commanding Company.

Lieut. H. B. Fleming.

Capt. J. A. Hardie and Lieuts. Horatio G. Gibson, H. B. Lyon and George F. B. Dandy were with the companies left as guard to the camp.



OLD BLOCK HOUSE,
Occupied by Steptoe Command.



LIEUT. M. R. MORGAN,
Third United States Artillery.

II. RECOLLECTIONS OF THE SPOKANE EXPEDITION.

BY BRIG.-GEN. M. R. MORGAN, U. S. A.

(Two Letters.)

SPOKANE, WASH., June 18, 1907.
P. O. Box No. 1177.

BRIG.-GEN. MICHAEL R. MORGAN, RET'D,
St. Paul, Minn.

DEAR SIR: Nearly fifty years ago, Capt. E. D. Keyes said that Edward Otho Cresap Ord and Michael Ryan Morgan conducted themselves most gallantly at the Battle of the Four Lakes, Washington Territory. Colonel George Wright concurred in the judgment of Captain Keyes, so the army records show.

Next year it is proposed by the Spokane Historical Society to observe that semi-centennial.

Yesterday, I received a letter from George Brown Dandy, brigadier-general, retired, from whom I learn of your address as above.

May we beg or borrow a photo of yourself? May we have any recollection of the Four Lakes and of Spokane Plains, which may yet linger in your mind? Morgan, Gregg, Dandy, and unless Davidson and Lyon, who joined the Confederacy, some enlisted men seem to be the only survivors of so much that meant much to present-day Washington, that we feel impelled to disturb them in their retirement.

Yours cordially,

(Signed) GARRETT B. HUNT.

ST. PAUL, MINN.,

No. 526 Holly Ave., July 19, 1907.

MR. GARRETT B. HUNT,
Spokane, Wash.

DEAR SIR: In reply to your letter of June 18th, postmarked June 15th, and received by me June 18th, I will state that I had a call from Professor Trimble, of Spokane, on the afternoon of the day (June 18th) on which I received your letter. Professor Trimble sought information on the matter to which your letter refers. He asked me where I was just before our Spokane Campaign.

In the spring of 1858, and for some months previous, I had been in command of a detachment of the Third Regiment of Artillery, in which regiment I was a first lieutenant, and stationed at Nome Lackee Indian Reservation, some twenty-one miles in the interior from Tehama, Cal. From this duty I was relieved in the spring of 1858, and turning over my detachment to the proper officer at regimental headquarters, Benicia, Cal., I proceeded to join my proper Company "K," at Fort Miller, on the San Joaquin River, Cal., where I remained only long enough to be convinced that it must be the most disagreeable military post in the United States, when we received the news of the defeat of the troops under Maj. E. J. Steptoe, Ninth Infantry, Brevet Lieutenant-Colonel U. S. Army, which defeat took place May 17, 1858, in an engagement with Spokane Indians at To-hots-nim-me, on the Colville Trail, Washington Territory, with the death of Brev. Capt. O. H. P. Taylor and Lieut. William Gaston, First Dragoons.

Then came orders to the commanding officer, Fort Miller, Capt. E. O. C. Ord, Third Artillery, to break up the post, leaving the acting quartermaster to do this while he, Captain Ord, and I proceeded with our company to report to Colonel Wright, at Fort Dalles, Ore. At this time ten companies, all of the regiment but the two light batteries, "C" Braxton Bragg's and "E" Thomas W. Sherman's Third Artillery, were on the Pacific Coast in California or Oregon, and were equipped and armed as infantry. I may mention that I was well pleased to be ordered away from Fort Miller, believing that any change would be for the better.

We marched up to Stockton, where we embarked on a boat for San Francisco, and there took steamer for Fort Vancouver, Washington Territory, on the Columbia River.

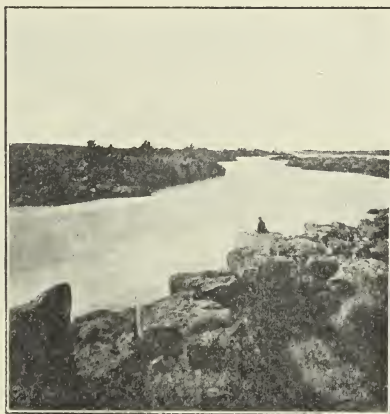
Going on board the steamer in San Francisco I saw ex-Capt. William Tecumseh Sherman, at the gang-way, look at us, of his old regiment, marching on board and going up to Washington Territory to discipline those savages, Spokanes, Cœur d'Alene, etc., who killed our comrades.

Six companies of the regiment were gathered up from various posts in California and assembled at Fort Dalles, under Colonel Wright.

From this point we marched up to Fort Walla Walla, where we found companies of the First Dragoons and Ninth Infantry.

After due preparation we marched for the Snake River, at the crossing of which, on the north bank, the hostile Indians seemed to be assembled in force. On leaving Walla Walla, and from there to the Snake River, we found that the Indians had burned the grass in front of us, which, however, caused us very little inconvenience.

We remained at the crossing of the Snake River several days, until we had built at Fort Taylor, and got our pack train in charge of Capt. R. W. Kirkham, A. Q. M., United States Army, ready for use. Leaving Fort Taylor with a garrison of one company of the Third Artillery, under command of Brev. Maj. O. Wyse and Lieut. Gabriel H. Hill, we crossed the Snake River. Before crossing, the Indians had appeared, as before mentioned, on the opposite high bluff bank, daring us to come over, and with disrespectful gestures intimated that they entertained a great contempt for us. This feeling was further exhibited after we had landed on the north bank by the united Spokanes, Cœur d'Alenes, Pende d'Oreilles, Palouses, etc. Keeping at a good distance in front of us, firing at such a distance that we were not disturbed, they certainly showed none of that bravery that was so destructive to Steptoe's command.



SNAKE RIVER.

In this so-called "Spokane Expedition" we had, if I remember correctly, leaving Major Wyse behind at Fort Taylor, five companies of the Third Artillery, armed as infantry, and as fine looking soldiers as ever stepped in shoe-leather, the companies, each numbering not less than sixty-five men, under the command of the Senior Capt. Erasmus D. Keyes; two companies of the Ninth Infantry, under Captains Frederick T. Dent and Charles S. Winder, with four companies of First Dragoons, all commanded by Brev. Maj. William N. Grier, who had with him Lieuts. Henry B. Davidson, William D. Pender and David McM. Gregg. I believe these were all the officers of dragoons present in the expedition under command of Col. George Wright, but you can get all the names correctly on application for the same to the War Department.

Lieutenant John Mullan, Second Artillery, had command of a band of friendly Nez Perces, who served as scouts.

Lieutenant James L. White, Third Artillery, had charge of the two mountain howitzers, and detachment to serve them.

I depend on my memory for what I write. We had a very wholesome respect for those Indians who had so thoroughly defeated Step-toe's command. We were constantly armed, even sleeping on our arms.

We crossed the Snake River at Fort Taylor, late in August, the Indians hanging around us from the start. On the 30th of August we had a harassing day, because of the heat, the absence of water along the trail and because the enemy hung close to us, firing upon us but doing us no damage. We suffered greatly from thirst. I remember passing a small marsh where you could wet your throat by getting down on your face and sucking up the moisture. After we had passed this place, the column pushing on rapidly with the pack-train to get into camp, and being closely pressed by the Indians, who were firing upon us, when my captain told me that two of his men had fallen out to visit that marsh and wished I would go after them and bring them in. I knew that if any few men had fallen to the rear and were not then with the column, they very likely had been scalped. I fell back alone and kept going until I reached the rear-guard and saw the savages firing at us, when I turned around and to the front with the rear-guard. I knew that if those two men had not returned to the column they never would return. When I reported to my captain where I had been and had not seen the men, he told me, "It's all right, the men are here." This reminded me of a story I had heard of an occurrence in the Florida War of an inexperienced captain ordering a young lieutenant in the Everglades to go forward alone and draw the enemy's fire.

The next day, August 31st, we remained in camp for "muster." September 1st we marched out and engaged the Indians in the Combat of Four Lakes, driving them before us to our great satisfaction and to their great surprise. Of the subsequent engagements I remember but very little. I suppose Kip's book "*Army Life on the Pacific*," which I have somewhere, but cannot lay my hand on it just now, has the entire campaign described. In one of these combats my captain sent me off alone to draw the enemy's fire, after the manner of the Florida War captain; that is, get so near the enemy that he would be tempted to fire at me, so that we would know that he was there, and, although I might be shot, the rest of the command would be warned and saved. I came out all right, and my captain thenceforward was complimentary of my soldierly qualities. He wanted me brevetted captain, but they at Washington did not, at that time, appreciate what it was to be in an Indian fight. That the hole made by an Indian-fired bullet was just as large as one made by a bullet fired by a white man. My captain was a brave man. He had no fear for himself. While at Fort Miller a friend of his was bitten by a rattlesnake. The captain, with a mouth in bad condition, proceeded at once to suck the wound. The friend was saved and the captain did not suffer. Some years afterward, the captain, then a major-general, was wounded in front of Richmond. I

saw him on a hospital boat on the James River, lying on a bed with his face downward. He had not been shot in front; he was on his way home to get well of his wound. I said to him, "I congratulate you." He asked, "Why so?" "Because you are going home," I answered. I said, "I wish I had your wound so I might go home." He laughed heartily, and seemed to agree with me, that after three years of war it was not a bad thing to get ordered home.

On our march in the Indian country we searched for Indian caches containing food, and when found burned the contents.

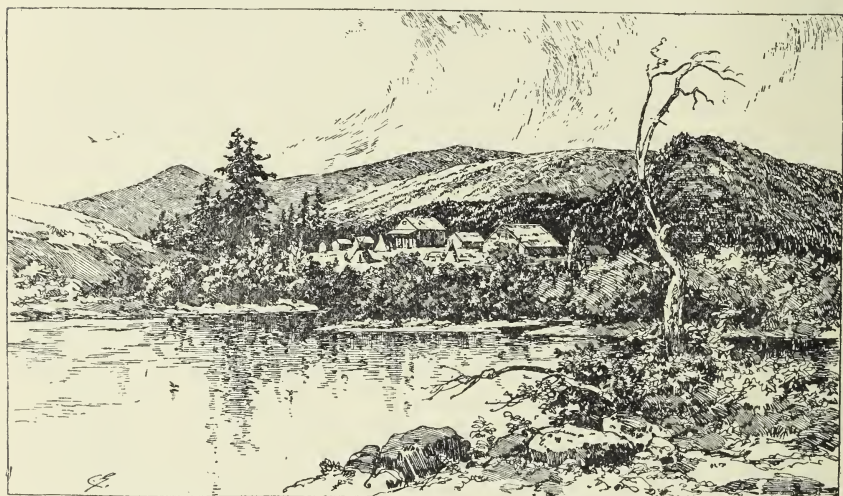
We captured about 1400 ponies, and after each officer had selected one for his own use, the remainder were corralled, and company after company, in turn, marched up and fired into them until the muskets of the company became fouled, when the company marched off and was succeeded by another, until all the ponies were slain.

While this judicious slaughter was going on, the Indians were assembled on the distant hills looking on at the destruction of their wealth. This was their Gettysburg. If the ponies had not been slain the Indians would most certainly have come in the night, stampeded them and got them back.

I have stated that each of the officers selected a pony for himself, but it was with the understanding that in case the animal was not satisfactory he must be shot; he must not be turned loose. One of the officers, whom I will call Lieutenant X, had selected a beautiful pony for his own use, and which he would ride at once. The other officers decided to let more confident riders break theirs for them. Among Lieutenant Mullan's Nez Perces was one called "Cut-mouth John," who was very much around among the officers and men. He was looked upon as rather a "Cultus" Indian. He would take what he could get, and as scalps of the enemy killed in combat were scarce, he would take them no matter how the original owner lost his life. He received a promise from Lieutenant X that he would give him, Cut-mouth, the pony if he decided not to keep him. The pony behaved very well for a day or two, and the lieutenant was congratulated by his more cautious associates on his success as a rider of Indian ponies; but one day, as the column was marching along and Lieutenant X riding his pony, the latter shot out from the column, and after some tall buck-jumping, to appreciate which you must experience it on a strong, healthy mustang's back, threw X with much force, and then ran for the nearest water. The animal was caught up and Lieutenant X mounted him again, and as he showed symptoms of bucking again, the column was halted, when the lieutenant slid from the animal's back and called to his company to know if there was any man in it who thought he could ride the pony. One man volunteered, and he being thrown, the lieutenant asked again for a volunteer. The answer was, "No, lieutenant, nobody wants to try him." The lieutenant thereupon ordered him taken to the rear and shot. Cut-mouth John learned of the shoot-

ing of the pony promised to him in case Lieutenant X did not wish him, and went at once to the lieutenant to complain of his failure to keep his promise. Lieutenant X could only say he had forgotten all about his promise to Cut-mouth, but said in lieu of the pony he would give the Indian a colored shirt. Cut-mouth being short of underwear, and having but a scant amount of baggage along, accepted the substitute with satisfaction.

Having destroyed the ponies and all the caches we found, we pushed on as far as the Coeur d'Alene Mission, which we found to be under the jurisdiction of Reverend Jesuit Fathers, the chief of whom was Father José, and who was very kind to us, giving us fresh potatoes,



CŒUR D'ALENE MISSION, 1858.

for which we were thankful. The fathers interceded for the belligerent Indians, who promised to be better in the future than they had been recently, and peace was made.

The Indians having been disciplined, we had no further business in that country, and after resting ourselves and our beasts, we retraced our steps and moved toward Fort Taylor, Fort Walla Walla, Fort Dalles, Fort Cascades and Fort Vancouver, at which latter post we arrived in October. On our way back we halted on some creek, encamping in a hollow, while a detachment of dragoons was sent off to recover two guns that had been cached and left by the Steptoe expedition in the spring after the combat of To-hots-nim-me. While here a notorious Indian murderer named Qualchen, son of Owyhee, with a beautiful Indian woman rode into camp. He seemed dazed. He had seen the detachment of dragoons going for the guns, and thinking our entire detachment was gone, dropped into our camp. He stopped in

front of Colonel Wright's tent, where the officer of the day, Captain Keyes, Third Artillery, happened to be. Keyes took Qualchen's gun from him and told him to dismount, which he did. The beautiful squaw did not stop, but passed out of camp, passing right by me as I stood by my tent. We never saw her again. Qualchen was sentenced by Colonel Wright to be hanged that day, and Capt. James A. Hardie, who succeeded Captain Keyes as officer of the day, was charged with the execution of the unpleasant duty. How we got possession of Owyhee, I do not now remember, but I think he gave himself up, and Colonel Wright told him to go out and bring in his murderous son, Qualchen, and he would spare his, Owyhee's, life. Owyhee went off, did not find his unpromising son, but came back after Qualchen had been hanged. He was then kept under guard, and it was the intention to take him to Fort Walla Walla, there to abide the action of the Department Commander. After the dragoons had returned from the Steptoe field with the cannon, we marched on to Fort Taylor, where we must have tarried for a few days. Here they put us lieutenants on the roster of officers of the day. We had been going on guard as officers of the guard, and on the day we started from Fort Taylor I was officer of the day and had charge of Owyhee. While I and the Indian chief were mounted, my guard of three or four men were on foot. I had my pistol in my belt and on my left hip, the Indian rode on my right. As we approached a creek, the Tucannon, Owyhee dropped behind a little, looking at me; I supposed afterward, it was to see if I was armed. He saw no pistol, and as we came to the stream, my guard went up to cross over on a fallen tree, leaving me alone with the Indian. This was Owyhee's opportunity; he cut me repeatedly across the eyes and face with his whip, and cutting his pony, quickly crossed the creek, and I, getting over my surprise, put after him, drawing my revolver, cocking it and shooting at him. My horse belonged to the Government and was not the best. I kept near the fugitive, angry because I feared he might escape, and that would end my military career. I put three bullets into him, and getting him up into a cul-de-sac, from which he could not escape, except by passing through the command which had preceded me in crossing the creek, I held him there until a trooper rode up. The pistol shots had been heard and had alarmed the portion of the command nearest to me. Some of the dragoons rushed toward me, the one nearest being Sergeant Ball, afterward Maj. Edward Ball. Owyhee sat motionless on his pony between me and the sergeant. I had exhausted all the charges in my pistol and told Ball to shoot the Indian, which he did, Owyhee falling from his pony. Everything he had about him or his pony was at once seized by Mullan's Nez Perces. I took his handsome saddle, covered with brass nails, and which I afterward gave to the army surgeon, Barnes, at Fort Vancouver, who later became surgeon-general of the army in the War of the Rebellion, and

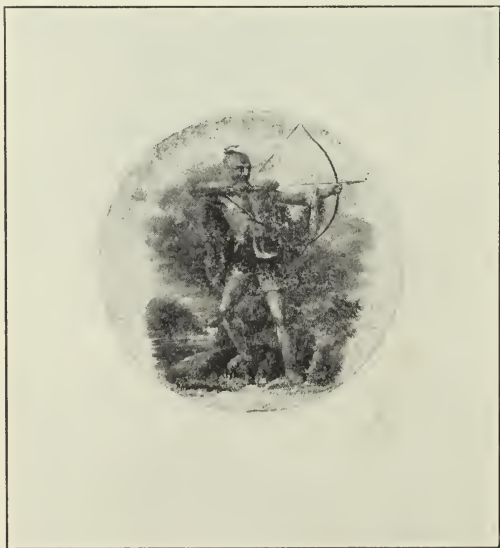
who attended President Lincoln when he was shot by Booth at Ford's Theater in Washington.

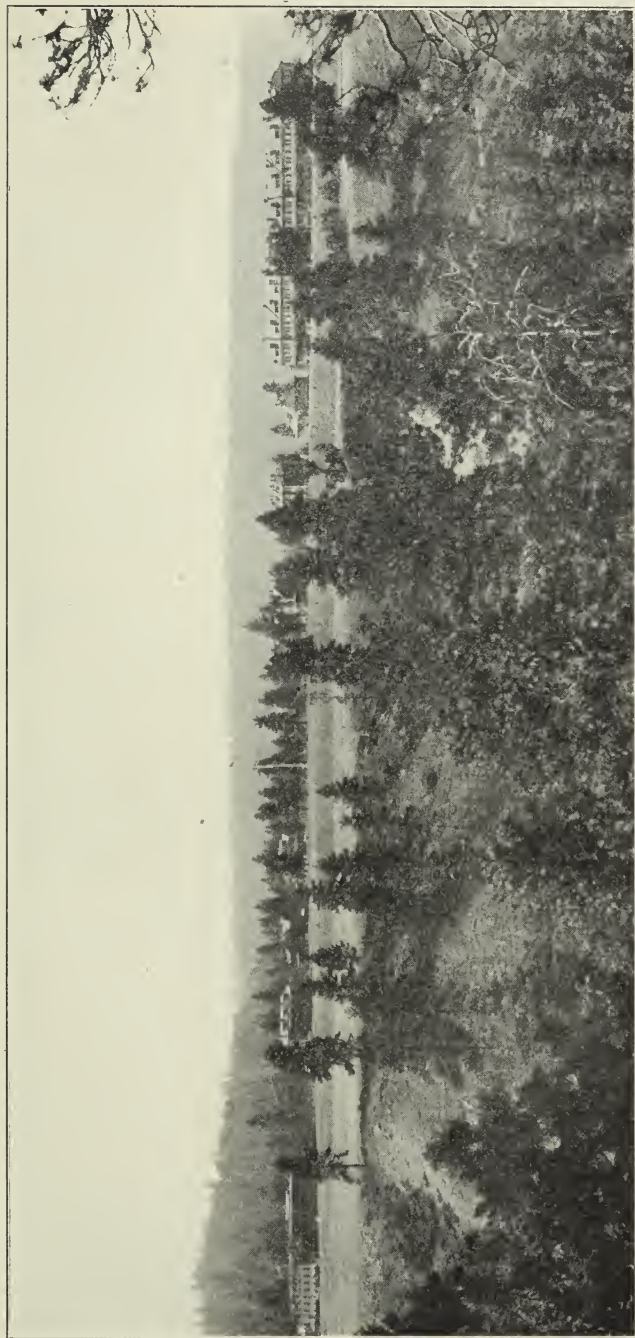
Colonel Wright called upon me for a written report of all that had taken place, which I gave.

Owyhee did not die until sunset. There was an ante-mortem examination of the body, which substantiated all I had reported. Next morning we marched on to Fort Walla Walla, where we were hospitably treated by those whom we had left there.

We, of the artillery, bade good-by to our comrades of the dragoons and infantry and proceeded to Fort Vancouver via Fort Dalles and Cascades. Shortly after we reached Vancouver, Brigadier-General Harney arrived there to take command and prosecute the war against the Spokanes and allied tribes. General Harney found that the war was over and peace reigned throughout his department, and so continued until the Nez Perces outbreak in 1877.

As peace reigned, General Harney, as instructed from Washington, made public orders sending Captain Ord with his officers and the skeleton of his company, four non-commissioned officers, to the artillery school for practice at Fort Monroe, Virginia. There I remained from January 1, 1859, to the 12th of August, 1861, with the exception of a short service at Harper's Ferry at the time of the John Brown Raid in the fall of 1859, when I took my place with those who served the Government in opposition to secession and rebellion.





FORT WRIGHT, STATE OF WASHINGTON

(Three miles from Spokane.)

III. WHERE THE STEPTOE EXPEDITION MADE ITS LAST
STAND.

BY AUGUST WOLF.

Locomotive whistles give shrill warning as they enter the town of Rosalia, Wash., thirty miles south of Spokane, and long wheat trains thunder 'round the curve at the base of the historic hill, where nearly a half century ago the Steptoe expedition halted and prepared to make its last stand. Several miles northward, along the ridge, where the soldiers battled desperately with the reds in the spring of 1858, are orchards and comfortable homes, and sloping westward on the bench-like levels descending on Pine Creek are substantial buildings, stores and banks, schools and churches, occupied by more than a thousand persons, attracted to the picturesque town from various parts of the Union, and the hills, then green with bunchgrass, over which for miles the Indians came with murderous purpose, are vast grain-fields, dotted with the homes of happy and contented people.

It was not so forty-eight years ago when Colonel Steptoe, with a handful of men, halted, as the shades of night were gathering, to face what seemed inevitable massacre on the morrow, for crazed with blood and victory, thousands of painted savages gathered from the Yakimas to the Cœur d'Alenes, hung like hungry coyotes to flanks, front and rear.

The command had reached the bend of Pine Creek, along the ridge of which the soldiers had battled since midday, and prepared for the final encounter. Several days of fierce fighting left the men with a few rounds of ammunition and depressed by the loss of comrades and two trusted officers. At a council called by Colonel Steptoe, it was decided to steal or cut a way through the cordon of the enemy. Scouts were sent out, and it was ascertained that the bluff directly opposite the creek had been left unguarded, the Indians believing it too precipitous for the soldiers to scale. It was determined to gain the heights, and everything that impeded flight was abandoned. During the halt three of the wounded died, either because of the seriousness of their injuries or as the result of the compacts which existed in the Indian-fighting days—never to let a wounded comrade fall alive into the hands of the torturing red foe.

The howitzers were dismounted, the carriages sunk beneath the waters of Pine Creek, and the cannon buried with the bodies of Captain Taylor and the soldiers, horses being led to and fro over their graves to obliterate all traces of interment. When all these preparations had been made, the soldiers, at midnight, silently deserted the burial spot of their beloved officer, who had been spared the tale of defeat and flight which brave men do not care to survive to tell, and with muffled

hoofs, hushing the moans of the wounded, the men forded the creek and clambered up the steep bluff undisturbed. Then they mounted, and at daybreak, when the Indians charged the deserted camp, Colonel Steptoe and his men were passing the pyramid, known as Steptoe Butte, which towers like a mighty sentinel standing guard over the ten hundred Palouse hills.

The annexed data regarding the expedition were obtained from Maj. J. G. Trimble, now of Berkeley, Cal., who took part in the expedition. Major Trimble was enlisted in 1855 in the First Dragoons, who were ordered north from California, arriving just in time to participate in the Yakima War. They were afterward dispatched to Walla Walla, Wash., where a permanent post was established with Colonel Steptoe in command. Major Trimble was then a sergeant.

The forces consisted of three troops of dragoons, sixteen mounted infantrymen, with two small howitzers, and half a dozen civil employes; in all, 175 men and a small herd of cattle. The equipment was poor. One company was armed with Mississippi Yager rifles, which carried well, but could not be loaded on horseback. The others had muskets, which carried one ball and three buckshot. These guns were of no use at more than fifty yards. The men also had old-fashioned, single-barrel, muzzle-loading pistols, decidedly inferior to those of the Indians.

The expedition left Walla Walla early in May and marched to Alpowa, a point on the Snake River a few miles below Lewiston, Ida., where there was a camp of Nez Perces Indians. When it became known that the force would cross the river and march northward, McBean, a half-breed guide, refused to go further, but old Sawyer and Timothy, of the Nez Perces, took his place. Sawyer, though not a head chief, was influential with his people. After securing these guides, the command was ferried over the river by the Indians. The crossing was made a little below what is now known as Steptoe Cañon.

"It was an interesting sight," Major Trimble said. "The Indians seemed perfectly at home in the water. Their dark bodies, glistening like copper, would glide gracefully among the horses. Some of them swam the horses, while others ferried the men and the supplies across in their canoes.

"When the command was safely across, the men started up one of the cañons west of Steptoe Cañon. They followed a course which took them near the present towns of Pullman and Palouse, crossing the Palouse River, where the banks were neither steep nor rocky. The command then continued northward until it came upon a large encampment of the Spokanes, the Cœur d'Alenes and the Palouzes. Many Yakimas and Klickitats were also in evidence.

"It had been supposed that the Northwestern Indians were friendly, but they showed themselves otherwise. The command camped near the Indians, however, at a spot where there was plenty of wood,

water and grass. The morning of May 17, 1858, Colonel Steptoe noticed the menacing attitude of the Indians, and decided to retire, but as he did not take formal leave of the chiefs, his retirement looked to them like a flight.

"Soon after the force started to retire, Vincent, head chief of the Cœur d'Alenes, and Father José, of the mission, rode up and conferred with Colonel Steptoe. The appearance of the priest among the Indians was startling to the soldiers. Soon after that the Indians began firing over the heads of the troop. The soldiers had received strict orders not to fire, but the tension was great, and when one of their number was wounded they returned the fire, and the fight became general.



REMAINS OF BUILDING USED BY STEPTOE.

"I was with a company assigned to guard the rear. The Indians made no stand, but would give way when a charge was made, though they followed the retreat, firing continuously. The inferiority of the soldiers' guns to the Hudson Bay rifles of the Indians was soon demonstrated. At one place the Indians gained a commanding hill, and endeavored to cut off the rear-guard. The Indians were charged, however, and sustained severe losses, among them being Victor, an influential Coeur d'Alene chief, who sustained a mortal wound. Several of the command were detailed to hold the hill while the main force continued its retreat. This they did until they were in danger of being cut off.

"The command then moved directly toward the huge, bare, conical mass known as Steptoe Butte. Before the men got there, however, all the cattle and most of the pack-train had been captured by the Indians.

They arrived at the butte about the middle of the afternoon. The uninjured men spread out in skirmish lines along the north and east sides of the butte, seeking refuge behind tufts of bunchgrass. Behind them were placed the supplies, the wounded and the two howitzers.

"The wounded suffered severely. The men had been without food since daybreak, and without sleep for more than twenty-four hours. The Indians kept attacking persistently; they tied bunchgrass to their heads and then wriggled like snakes through the long grasses. To add to the desperation of the situation, the command was running short of ammunition, it having started with only about thirty rounds to each man.

"When evening fell the Indians ceased firing, but their camp-fires blazed all around and made the attempted sortie dangerous. Flight was the only course left. The howitzers were buried and the dead interred. The wounded were tied to the horses, the white horses being covered with dark blankets. A few mules were picketed at one side, to suggest some sort of trap to the wary savages, and at nine o'clock at night the command set forth under the guidance of the Nez Perces.

"Through all the weary night the men rode, reaching the Palouse Hills at daybreak. When they had crossed the river a halt was made, and some semblance of order restored to the command, but there was no food to be had. Six men were missing, probably becoming lost in the hurried flight through the dark. The rest of the command soon remounted the jaded horses and rode hard toward the Snake River.

"About dusk the troops reached the top of the long, rough descent to the river now known as Steptoe Cañon, and at midnight they got to the river, and the faithful Nez Perces were there. A strong body of them climbed to the top of the cañon and stood guard till daylight, when the troops crossed the river. The squaws succored the wounded, and broiled salmon for the nearly famished men. Had the Nez Perces not remained faithful, it is probable that the entire command would have been destroyed.

"The next day the troops started back to Walla Walla; after a time they saw approaching a large body of Indians, but they proved to be Nez Perces, who offered to accompany the troops northward, if they cared to return to punish the Northern tribes, but the offer was declined, for such an expedition would have necessitated great preparations, so the dejected remnant of the Steptoe expedition continued on its way to Walla Walla."

[THE JOURNAL is indebted to Mr. August Wolff, of Spokane, for photographs of the old buildings once used by the Steptoe Command, and of the modern Fort Wright; also portrait of a Palouse Indian warrior.

Mr. Garrett B. Hunt, of the same city (whose correspondence with

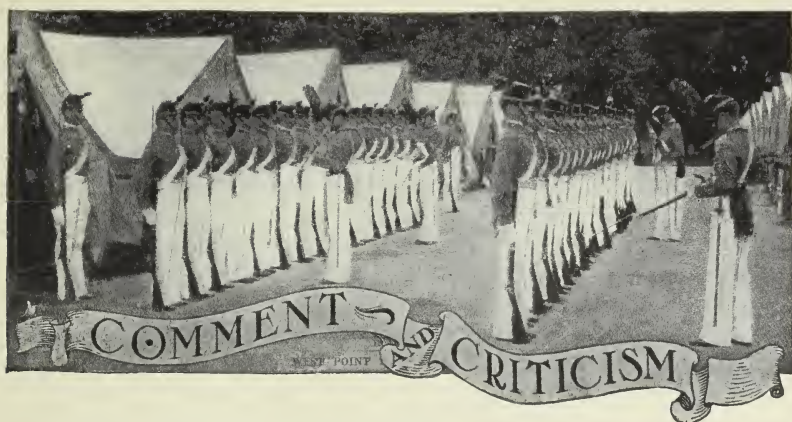
General Morgan is published as part of this article), has contributed some Indian portraits, one of which appears below—that of “Garry.”

Mr. Hunt writes of “Garry” (who was one of the signers of the treaty made with the Northern Indians in 1858) that “he was head chief of the Spokanes in 1858, and favored peace with the whites, but frankly avowed to Colonel Wright that he could not control his young men, and we have it from a Cœur d’Alene priest that he feared the personal consequences if he were too outspoken for peace in the councils of his people. He died in his tepee on the hillside, within the present limits of the City of Spokane, January 13, 1892.”—EDITOR.]



“GARRY.”

Spokane Chief, Signer of Treaty with Colonel Wright.



"Military Necessities of the United States and the Best Provisions for Meeting Them."

By Member of the Board of Award.*

Necessity.—This paper presents a fair solution of the problem under consideration, but provides no reserve for the Regular Army or National Guard, and covers none of the defects in the present contract of enlistment. This discussion appears to be limited to what would be required in time of peace, and the writer fails to provide a sufficiently large force for war.

Paratus.—In this paper, as in "Necessity," there is no reference to the Navy, and no provision for an increase in the Regular Army, and no plan for a reserve for the Regular Army or National Guard, and no suggested alterations in the contract of enlistment to provide the aforesaid reserve. The writer presents a proposed organization of volunteer officers in peace, to be available in war, which suggestion, while not practicable, is worthy of consideration, and gives to the essay a greater value than those heretofore mentioned. The plan of the writer requiring Congressional Districts to supply their proper quota is good and is in line with the suggestion presented by "Wilmar" in the latter's discussion of "Territorial War Organization."

Wilmar.—This writer refers to the Navy as his first line of defense, and in this his essay is unique. His second line consists of the land forces near the seacoast, for which he requires 270,000 men. His third line consists of five field armies aggregating 1,000,000 men. His suggestion of a territorial war organization, with his discussion of the Navy as a first line of defense, is excellent and unique. His recom-

*These extracts, from remarks made upon certain essays submitted in competition for the Gold Medal Prize, 1907 (with their *noms de plume*), are published for the information of our readers.

mendations throughout seemed to be well founded, and their adoption would provide an efficient war organization. While the Chief of Coast Artillery may have calculated that 270,000 men are needed for the coast defenses of our country, the writer's distribution of them, as a more or less passive defense, to points that may never be attacked, is defective. Any enemy attacking our coast line will probably pick out the weakest point and throw his entire force against it. That 270,000 men should be immobilized by assignment to the coast defenses of our country to repel a possible attack which may be delivered at any point is wasteful and not to be considered under our conditions and excellent means of communication and transportation. The writer recommends an increase of the Regular Army by 70,000 men, but presents no plan for its accomplishment, and does not discuss the proposed organization and composition of our field or mobile armies which must be relied upon to conduct the offensive and defensive campaigns, and which, by virtue of their mobility, would be utilized to repel attacks on the seacoast for which he has already tied up 270,000 additional troops. In his discussion of the second line, he assigns infantry to the field-guns of that line (page 12), and recommends that the largest unit in reserve, of militia, be a company.

Tempelhof.—This is the best written paper and contains excellent ideas, well digested and worked out to a definite conclusion. It is evidently written by an officer of considerable experience, who has given the subject much study and thought, and while he neglects to mention the navy, he may have properly considered himself restricted to a discussion of the land forces. His deductions as to the peace and war strength of the army seem to agree with the most approved modern opinions thereon. He deals principally with the mobile armies of the United States and their organization, which would seem to be the principal subject of discussion under the title of the essay. The writer is dispassionate, methodical and conservative, and I believe his paper the best of those submitted.

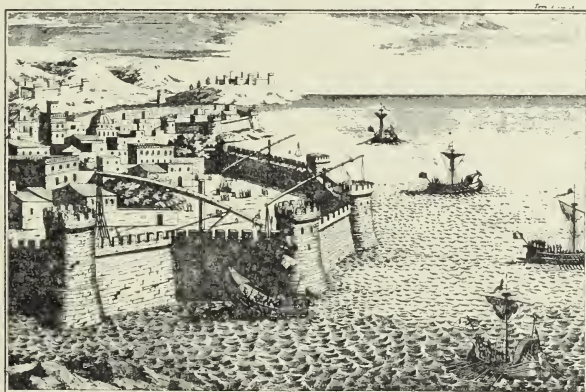
“Naval Coast Defense.”

The N. Y. Herald—Editorial.

The weakness of our naval defense on the Atlantic and Gulf coasts is, in the absence of the main body of the fleet, so sure that no Homeric enumeration of the available ships is necessary to push home this unfortunate truth. In a singularly happy phrase we are a two ocean Power, and not, as in the case of the vexed Great Britain, a two standard Power—that is, the needed possessor of a sea strength superior to that owned by any other two maritime and rival nations. We demand equal strength on two oceans, and not against many rivaling Powers. * * * To the latest number of that capitably edited and illuminating army

publication, the JOURNAL OF THE MILITARY SERVICE INSTITUTION, Lieutenant-Colonel Scriven, U. S. A., has contributed another valuable chapter on the subject of coast defense. After setting down the five undeniable factors that must be considered in all operations to resist attack on our coasts, he points out that the first necessities are the fixed and floating defenses of the artillery, consisting of armaments, submarine defenses and material, of coast defense and scout ships, of torpedo, submarine, patrol and picket boats and of a personnel, including all troops assigned to duty in connection with the fixed defenses. This earnest officer points out that there are seventy-eight separate forts where modern defenses are installed or are in process of installation, and that in the event of serious war the fixed defenses alone will require a force of artillerymen considerably greater than the total strength of the Regular Army as now authorized by law. Here enters the old and well-graced shibboleth. Give the gunners what they want, and this surely will include the second reserve—without which real efficiency will be in a state of flux—for these gunners of ours are very clever people and will not waste an ounce of the energy they may control.

Lieutenant-Colonel Scriven does not fail to dwell upon the naval needs. He renews the old suggestion for a patrol squadron that will secure military information, and he emphasizes the demand for torpedo craft and other auxiliaries as secondary units of naval defense. * * *



CORREAU D'ARCHIMÈDE SELON POLYDE ET PLUTARQUE QUI SERVOIT À HARBONNER ET À ENLEVER LES Vaisseaux.



Stuart's Monument at Richmond.

Stuart's Cavalry in the Gettysburg Campaign.*

THE object of Colonel Mosby is to analyze and compare the two reports of Gen. R. E. Lee in regard to his orders and to the management of Stuart's cavalry in the Gettysburg campaign.

He decides that it is impossible to reconcile their difference.

He writes in his preface, "As I brought the information that induced him (Stuart) to ask permission to cross the Potomac in rear of the enemy when he was ordered to the Susquehanna * * * I think I have a right * * * to be heard."

Colonel Mosby then writes a long introduction on the Battle of Chancellorsville, on the part of the Southern Army, "the boldest deed of arms and the most wonderful achievement in the history of the war." He may well write as he does in regard to the bravery and audacity displayed by Lee, Jackson, and after the death of Jackson by Stuart, but he does not, and in truth he should not be asked to explain why the Eleventh Corps was surprised and driven in, or why that corps was selected to hold the right of the army, or why three corps were not allowed to engage the enemy. With all his experience in scouting within and about our lines, and with his knowledge of what our army could have done had it had a commanding officer on Sunday, May 3, 1863, he could not think for a moment that the army was defeated; since only Hooker was whipped, and by a largely inferior force well commanded.

We pass to Colonel Mosby's account of "Brandy," Chapter 1, fifty-seven pages.

**Stuart's Cavalry in the Gettysburg Campaign.* By J. S. Mosby, New York. Moffat, Yard & Co.

BEVERLY FORD.

The following, written by an active participant in "the Brandy Station reconnaissance-in-force," under Pleasonton, covers all that should be said on that subject. He writes:

Is it not rather late in the day to write a book in the defense of Gen. J. E. B. Stuart, the brilliant Confederate Cavalry leader, who has no warmer admirers living than those who once crossed sabers with his followers? With those competent critics his reputation in connection with the great mounted duel at Brandy Station, or Beverly Ford, on the 9th of June, 1863, may, in the opinion of the writer, safely be left, and needs no labored argument to maintain.

Yet Colonel Mosby thinks otherwise, and in a neatly printed book of 222 pages, endeavors to revise the records and traditions of the Civil War, so far as they bear upon General Stuart's operations.

It will be remembered that after the Battle of Chancellorsville, the opposing armies rested for a time near Fredericksburg on opposite sides of the Rappahannock. Early in June, 1863, General Hooker suspected that General Lee was moving a part of his army northward, and to determine this he ordered a reconnaissance-in-force across the Rappahannock.* It happened that the enemy's cavalry, assembled at Brandy Station, and which had been reviewed by General Lee on the 8th of June, and was in magnificent condition, prepared to execute a similar movement on the same day and by the same general route.† The Union forces comprised 7,981 cavalry, 3,000 infantry and twenty-four guns, under General Pleasonton. The Confederates under General Stuart numbered about 7,500 cavalry and twenty guns, and these were in the afternoon reinforced by a division of infantry. (Mosby, pp. 47, 48.)

A part of Pleasonton's duty was to develop the enemy's infantry, if any, as well as to engage an equal force of cavalry. Two small brigades of infantry had, therefore, reported to him as reserves and to hold the fords behind him, in case it became necessary for his cavalry to leave the Rappahannock River far in the rear.

On the night of June 8th Pleasonton bivouacked on the north bank of the Rappahannock River, near Beverly and Kelly's Fords, which are seven miles apart. Stuart's forces were encamped on the south side, near and between these fords, with two brigades thrown well out to the left of his headquarters on Fleetwood Hill in front of Brandy Station. It was his intention to cross at Beverly and the upper fords next morning, and divert the enemy's attention from the movement of Lee's infantry toward Pennsylvania. Stuart, ignorant of Pleasonton's proximity, contented himself with a nominal observation of the river; with a view to an early crossing, four batteries of his horse-artillery were parked almost on the verge of the river, within a stone's throw of the enemy. Just at dawn, under cover of the fog and the noise of the dam, one-half of the Union forces, under Gregg, crossed at Kelly's Ford, while the remaining portion, under Buford, dashed upon the astonished Confederates at Beverly, threw them into confusion and would have taken a rich prize had not the death of Colonel Davis, who led the advance, checked the ardor of pursuit, and enabled the surprised foe to withdraw his guns in haste to the rear

*McClellan, p. 284, and Mosby, p. 8, Lee to Stuart, p. 48.

†*Life and Campaigns of Maj. J. E. B. Stuart.* By H. B. McClellan, New York. Houghton, Mifflin & Co.

of the position previously occupied. Of greater value than captured guns were certain papers found in the abandoned desk of the artillery commander, which furnished some of the information for which Pleasonton had come. But he could not withdraw without crossing sabers with the Southern horsemen, who, under the inspiring presence of Stuart, soon presented an imposing front. Stuart had the advantage of position; the ground intersected by ravines and low stone fences, and interspersed with groves of large trees rose gradually in the direction of Brandy Station. A pause by the Union troops for formation enabled the Confederates to concentrate nearly all their strength upon Buford's column.

Buford's advance was stoutly contested for four hours, but ultimately Stuart's men were forced back toward Brandy Station, which Gregg was rapidly approaching from Kelly's Ford. At this critical moment a fresh Confederate brigade was thrown in and fiercely attacked Buford's right. Gregg had just connected with Buford, after a warm engagement with Stuart's right and rear (which hardly escaped a second surprise) and the combined Union effort was beginning to tell, when Pleasonton, at 4 P. M., having "developed" a distinctly superior infantry force, ordered a withdrawal. This was accomplished leisurely and without interruption, the last of the Union cavalry recrossing the river at 7 P. M.

The determined character of this engagement is evident from its duration of eleven hours, and its casualties of 932 Unionists and more than 500 Confederates; on both sides the loss in officers was large. While there was some dismounted fighting, the operations were principally mounted, and the large number of saber wounds attests their hand-to-hand character.

Colonel Mosby's efforts in this book to minimize the effect of Pleasonton's operations are in strong contrast with the generally accurate account by Stuart's adjutant-general, who found enough glory in that affair to give the enemy a generous share.

In the work under review it is contended:

1. That Pleasonton's movement was not a reconnaissance-in-force.
2. That Stuart had not considered an independent expedition.
3. That the Confederates were not surprised.
4. That Pleasonton obtained no information.
5. That Pleasonton was badly whipped.
6. That no trains carrying infantry were seen, and by inference no infantry supported Stuart.

All the above points are contradicted by McClellan and Newhall,* and the reverse of those numbered 1, 2, 3, 4 and 6 is proven by Mosby's own book (pp. 48, 9, 32, in order mentioned).

(3) As a matter of fact, General Stuart was "surprised" on two occasions on the 9th of June; once, by Buford, in the morning at Beverly Ford, and later by Gregg's unexpected arrival from the direction of Kelly's Ford. (See McClellan, pp. 264-266, and Mosby, pp. 8 and 32.)

(4) The artillery commander's (Beckham) desk, containing official papers, was secured in the confusion incident to Buford's attack, and gave valuable information. (6) Information as to the presence of Confederate infantry was obtained when General Daniel, with a brigade of Rodes' division, appeared. He reported: "About

*Captain (afterward Lieutenant-Colonel) F. C. Newhall, A.D.C. to General Pleasonton (in *Philadelphia Times*).

12 o'clock I arrived near Brandy Station, and received orders to report to General Hampton, and was by him placed in line of battle about one mile in advance of the station to support some cavalry that had fallen back before the enemy; after remaining in this position a short time, the enemy began to retire * * * the enemy retired before my line of skirmishers." Pleasonton's men could scarcely ask for better evidence of the presence of infantry.

(5) Major McClellan says: "He (Gregg) reformed his division on the same ground on which he had formed it to make the attack and without further molestation moved off to effect a junction with Buford. * * * He had been outnumbered and overpowered, but when the fighting was over he retired from the field at his own gait."

(5) "But the further pursuit of Gregg's division was soon decided for us by General Buford, who made a heavy attack upon W. H. Lee's brigade upon our left beyond the Barbour house * * * at the same time threatening another attack upon the Fleetwood Hill, and forming subsequently a junction with Gregg's division. The fighting upon the left was obstinate and bloody, and our troops maintained their ground with difficulty." (McClellan, in *Philadelphia Times*.)

Colonel Newhall says:

(5) "I was dispatched by General Pleasonton with orders to General Buford to give up his attack and retire to Beverly Ford * * * Buford came along serenely at a moderate walk * * * the pursuit by the enemy being a mere following as if for observation. Meanwhile, our guns were unlimbering on the north bank of the river, and at this point a large group of officers was gathered, including Pleasonton and his staff, who watched with interest the closing scene of the long day's action. There could not be a prettier sight, and it was often recalled among us. The river flowed beneath us, and as far as we could see to right and left on the southern bank no living object was visible. * * * The regiment left as rear guard trotted down to the ford and crossed it entirely unmolested by an enemy. * * * Considering the distance from the river to which our troops had penetrated, and that the various columns, widely separated though they were, withdrew from their position and crossed the Rappahannock without the slightest interruption from the enemy, I feel justified in denying that "we were driven across the river."

Major McClellan concludes his account of the battle thus:

"One result of incalculable importance certainly did follow this battle—it *made* the Federal cavalry. Up to that time confessedly inferior to the Southern horsemen, they gained on this day that confidence in themselves and in their commanders which enabled them to contest so fiercely the subsequent battle-fields of June, July and October."

As the Battle of Beverly Ford was the most complete cavalry lesson of the Civil War, the student of the history of the great conflict should not be misled by a mutilated or distorted record.

GETTYSBURG.

We then come to Colonel Mosby's "Gettysburg." Chapter II, 160 pages.

Here the author gives a full account of Stuart's brilliant ride and extensive raid in search of supplies, and all of this while under orders

or by permission of General Lee, en route to join the right of General Ewell, at or about York, Pa., and he writes much and with vigor to prove that Lee was not deprived of the use of his cavalry, and insists that General Lee did not write the matter in one of his reports which charges Stuart with having undertaken his raid in spite of his (Lee's) direction to go to Earby by a route taken to keep his cavalry on the right of the rebel army and between the army and the Union troops.

He claims, and seems to be able to prove, that Stuart had permission to take the route he did by the rear and to the right of the Union Army.

General Lee, in his report of July 31, 1863, says:

By the route he (Stuart) pursued the Federal Army was interposed between his command and our main body, preventing any communication with him until he arrived at Carlisle. The march toward Gettysburg was conducted more slowly than it would have been if the movements of the Federal Army had been known.

In General Lee's report of January, 1864, we read:

General Stuart was directed to hold the mountain passes with part of his command as long as the enemy remained south of the Potomac, and with the remainder to cross into Maryland and place himself on the right of General Ewell. Upon the suggestion of the former officer that he could damage the enemy and delay his passage of the river by getting in his rear, he was authorized to do so, and it was left to his discretion whether to enter Maryland east or west of the Blue Ridge; but he was instructed to lose no time in placing his command on the right of our column as soon as he perceived the enemy moving northward. It was expected that as soon as the Federal Army should cross the Potomac General Stuart would give notice of his movements, and nothing having been heard from him since our entrance into Maryland, it was inferred that the enemy had not left Virginia.

Mosby writes: "How could Stuart join Ewell on the Susquehanna, guard the gaps of the Blue Ridge Mountains in Virginia, watch and impede Hooker's crossing the Potomac, and then place himself on the right of the column as it advanced with Lee into Pennsylvania unless he was inspired with ubiquity."

Colonel Mosby is decidedly of the opinion that no censure could have been given to Stuart by General Lee; but to us it would appear that there is not any essential difference in the two reports. General Lee did censure him.

This book contains also a criticism upon the statements made in regard to the choosing of Gettysburg as a battle-ground. One could discuss that question for a life-time.

But the writer seems to have written so long after the battle that he has forgotten entirely to narrate the occurrence of July 3d when General Stuart endeavored to drive General Gregg from the right of the Union line. If he had read the account of that action as given by Rawle, or had referred to the report of it as found in H. B. McClellan, Major and Assistant Adjutant-General to General Stuart (page 341), he would hardly have presumed to omit that defeat of Stuart by General Gregg. Possibly Colonel Mosby was not there, nor at Brandy Station.

The military reader who may desire most interesting narratives of events as Colonel Mosby has compiled them will find much to amuse him and much of interest concerning the part played by the leader in a guerrilla warfare.

OLD SECOND CORPS.

A Happy Warrior.*

THIS volume is a fitting memorial—more enduring than marble, more life-like than bronze—of a pure patriot, a most gallant soldier, possessing civic virtues which would have carried him far to the front had not a cruel fate caused him to fall in battle, at the head of his brigade, in one of the closing scenes of the Civil War.

The record gives us glimpses of the beginning of the career of a thoughtful student, the son of a New England clergyman and the nephew of a famous poet and diplomat; his graduation at Harvard, a brief European trip, a return home, and the adoption of the business of an ironmaster. When the war cloud broke, "he heard that the soldiers of Massachusetts had been fired on in Baltimore, instantly resigned his place and went to Washington, arriving on foot after communication with the North had been cut off. Saw that the struggle was to be long, and for the country a struggle for life; he saw in the army a commanding call and also a career." In a letter to Senator Sumner he thus stated his qualifications:

I speak and write English, French and Italian, and read German and Spanish; knew once enough of mathematics to put me at the head of my class in Harvard, though now, I may need a little rubbing up; am a tolerable proficient with the small sword and single stick; and can ride a horse as far and bring him in as fresh as any other man. I am twenty-six years of age and believe that I possess more or less of that moral courage about taking responsibility which seems at present to be found only in Southern officers.

In a letter to his home, he wrote:

I think, too, you will agree that I am right in trying to enter the Regular Army, even with lower rank than I might get in one of the three-year regiments. I have thought from the first—and in this I am confirmed by what I see here—that while the volunteers will furnish fully their share of military talent, and more than their share of food for powder, it will fall mainly on the regular organization to keep the armies in the field and to keep them moving. Military science I have absolutely none—military talent I am too ignorant yet to recognize—but my education and experience in business and in the working of men may, if wanted, be made available at once in the Regular Army; the acting commissary for this whole military district is only a lieutenant of artillery. Of course I am too old to be tickled with a uniform, and too apathetic to get up such a feeling against the worst traitor among them as to desire personally to slay him, but, like every young soldier, I am anxious for one battle as an experience; after that I shall be content to bide my time, working where I can do most service and learning all I can from observation and from books.

In due time he was appointed (to his surprise) a captain in the new Third (later the Sixth) Regiment of United States Cavalry (he had only expected a second lieutenancy). Like other good civilian appointments, Lowell got his "baptism" in the cavalry skirmishes and scouting of the Peninsula Campaign of 1862, being later detailed on McClellan's staff. At Antietam and South Mountain he greatly distinguished himself by rallying and leading, under heavy fire, a broken regiment of volun-

**Life and Letters of Charles Russell Lowell.* By E. W. Emerson. (Boston and New York.) Houghton, Mifflin & Co.

teers, and was subsequently selected to carry to Washington thirty-nine captured Confederate flags.

When in 1863 a regiment of volunteer cavalry was raised in his home State, he was offered, and with some hesitation, accepted the colonelcy. The Second Massachusetts Cavalry became noted for its success in opposing and dispersing the guerrilla bands which infested the "right-of-way" (near Washington) of the Orange and Alexandria Railroad; Mosby regarded Lowell's command with respect as "a foeman worthy of his steel." This duty was distasteful to one yearning for a broader field, but as he said, "It is all in the day's work." At the opening of the Campaign of 1864 in the Shenandoah Valley, Colonel Lowell came under the eye of General Sheridan, who, in September of that year, assigned him to the command of the Reserve Brigade of the Cavalry Corps, composed of the First, Second and Fifth United States Cavalry, the Second Massachusetts Cavalry and Battery D, Second United States (Horse) Artillery.

Notwithstanding that several of his regimental commanders were his seniors in the Regular Army, his evident ability and pleasing personality secured their respect and loyal support. On the 19th of September he handled his new command with skill and valor, capturing two guns and many prisoners in the battle which sent General Early's army "whirling through Winchester." On the 18th of October, in the affair of Cedar Creek, the Reserve Brigade bore a conspicuous part in neutralizing the effect of the Confederate surprise under cover of the fog. Lowell's biographer states that:

He rode at the head of his brigade three miles along the front of the retiring line of battle, between the skirmishers and the main line * * * as coolly as though on parade, and General Dwight, commanding First Division, Nineteenth Corps, wrote: "They moved past me, that splendid cavalry; if they reached the pike, I felt secure. Lowell got by me before I could speak, but I looked after him for a long distance; exquisitely mounted, the picture of a soldier, erect, confident, defiant, he moved at the head of the finest body of cavalry that to-day scorns the earth it treads."

But the end of a brilliant career was at hand. Shortly after, he was struck by a partially spent ball in the chest, which temporarily prostrated him. A little later in the day when a general advance was ordered:

He was helped on his horse (the thirteenth horse in as many weeks had been shot under him in one of the forenoon charges) and formed his brigade for the last time, whispering his orders to his aides, for his voice was gone, determining again to charge and to take the destructive battery before them. * * * The command, formed in brigade front, rode rapidly toward the enemy. Almost immediately the colonel was struck by a bullet and fell. The charge was repulsed with loss, but was renewed, and soon the day ended in a great and conclusive victory.

The last moments of this gallant soldier were marked by a spirit of unselfishness and magnanimity not surpassed by the historic Bayard. The Surgeon of the Second Massachusetts writes as follows:

I can see that old house in Middletown as plainly as if I were there. It was on the left of the road. I could go straight to the place. There were four or five that night in the room. Lowell lay on the table, shot through from shoulder to shoulder; the ball had cut the spinal cord on its way. Of course, below this he was completely paralyzed. Four others were lying desperately wounded on

the floor. One young officer was in great pain. Lowell spent much of his ebbing strength, helping him through the straits of death. "I have always been able to count on you, you were always brave. Now you must meet this as you have the other trials—be steady—I count on you." When he heard the groans of the rebel wounded that were brought into the yard, he sent me away to look after them.

He, doomed to go in company with Pain,
And Fear and Bloodshed, miserable train,
Turns his necessity to glorious gain;
In face of these doth exercise a power,
Which is our human nature's highest dower;
Controls them and subdues, transmutes, bereaves
Of their bad influence and their good receives.

—*Character of the Happy Warrior.*

T. F. R.

International Law and Diplomacy of the Spanish-American War.

DUE to the liberality of Albert Shaw, Ph. D., of New York City, Johns Hopkins University has been enabled to have certain courses of lectures on International Law and Diplomacy. One of these courses was delivered by Elbert J. Benton, Ph. D., Assistant Professor of History in Western Reserve University, upon this subject, and is now published by *The Johns Hopkins Press* of Baltimore, under the above title.

The author shows that, during the period of his narrative, nearly all of the principles of public international law were called into being by the parties to the conflict. Naturally, the time covered is not limited to the period of active hostilities, but extends over some years previous to declaration of hostilities, when the parties were surely leading up to war, and several years after peace was declared, when the parties were readjusting their peace relations and arranging the status of the territories that were transferred from the one to the other as a result of the conflict.

During this time both parties met and acted upon new situations and declared themselves as to certain others, upon which the international community was uninformed as to their respective attitudes, because of their failures to previously outline a policy or course of conduct.

There is a very lucid description of the events leading up to the conflict and a careful tracing of the diplomatic history of the period in question. No one can read this history, in the light of after events, and fail to feel at least a twinge of regret that we acted as we did in insisting upon war, at our apparent inability or unwillingness to prevent filibustering and, through it, direct aid to the insurgents in a friendly neighbor's territory, and that we permitted the citizens of that insurgent territory of our friendly neighbor to come into our country, quickly acquire our nationality and make use of our press and of our territory, to incite trouble and promote civil war, all of which is a blot upon our national record. That we permitted our sympathies to go out toward this class of people, who were making use of our citizenship for the sole purpose of securing protection from the natural and proper results of the nefarious schemes is beyond dispute. That we too frequently demanded certain legal procedure in their cases solely because they could, under our laws, claim citizenship when, as a matter of fact, they should have for-

feited any such consideration, not only by reason of their return to their native land, but also because of the outrageous character of their crimes, is well established. The number of Americans who have become convinced of the unworthiness of the subjects of their sympathies at that time has increased enormously and solely through contact with them.

It was this misplaced sympathy of our people that finally induced our most conservative President to lay himself liable to the charge of abdicating his functions as Executive in throwing the burden of declaring war upon Congress. This body simply reflected that public sentiment in this country, which was anxious to see some bloodshed.

After careful analysis of all five reasons for our declaration of war, viz., (1) In the cause of humanity; (2) For the protection of the lives and property of our American citizens in Cuba; (3) In defense of commercial and financial interests involved; (4) For self-preservation, and (5) For the Maine disaster, individually and collectively, the author says and very truly: "In the opinion of nearly all text writers on international law, the particular form of intervention in 1898 was unfortunate, irregular, precipitate and unjust to Spain."

One of the very interesting features arising from the conflict was when Spain declared all treaties existing between the two countries were terminated, irrespective of the fact that some of them related to or contemplated a state of war. Still another interesting phase of this conflict was the methods adopted by the two parties of organizing certain additions to their navies. Neither Spain nor the United States had accepted the Declaration of Paris of 1856, so that both were at liberty to adopt privateering as a means of carrying on the war on the sea. Although Spain's method very closely resembled the much criticized Prussian method of 1870-71, yet no captures were actually made or hostilities committed by her. The Volunteer Navy of the United States seems to have fallen well within the safety line under the above-mentioned Treaty of Paris. Both parties actually adhered to the principles of the Treaty of Paris, and even went beyond it in their practices.

Our author clearly departs from his usual conservatism that marks the general enunciation of international rules of conduct when, in discussing the annexation of territory as a result of war, he says: "The time, however, has certainly come when popular sanction must be secured in all changes of territory affecting civilized peoples. The treatment of civilized inhabitants and their territories as so much property to be given as an indemnity is a political absurdity." In spite of the precedents he notes in this connection, the fact remains that Germany did secure Alsace-Lorraine by cession from France without a plebiscite, and enough other instances, including those of our own country, can be cited to demonstrate that, however strong the moral obligation to submit such matters to the people affected by the transfer after the close of hostilities, the actual practice does not conform to this moral obligation. There is a wide distinction between moral and legal obligations, and it is the latter only that really form the body of rules known as law. They become legal by virtue of a well-established practice of the international community, and solely in this manner.

Some of the most interesting and instructive discussions in this valuable contribution to international law will be found in the last chapter, which relates to the claims and property rights resulting from the conflict. In the Philippine Islands, under this heading, is found a discussion of the Friar lands, which was the apparent cause of our first national recognition of the Pope of Rome in international matters.

E. F. G.

General Howard.*

BORN in 1830, at Leeds, Me., descended from Revolutionary stock; educated in the district school, and given superior advantages by his stepfather after his eleventh year; educated at Bowdoin College from 1845 to 1849; at West Point from 1850 to 1854; by inheritance and training sober minded, religious and earnest, few men were ready to serve their country in 1861 with characters and accomplishments superior to O. O. Howard. Greek, Latin, Hebrew, metaphysics, mathematics, tactics, gunnery, modern languages and the Bible all had engrossed his attention, and he was also impulsive and zealous.

His autobiography is a mass of detail made up of his recollections of men and events, some of which came under his immediate observation and some of which did not.

Volume I carries the story to July, 1864, but the recital of many facts regarding battles, while interesting to the participants of such battles, is not of great value in the absence of maps and anything like a methodical account of events.

Chancellorsville is explained by the author's plain imputation that the responsibility rested upon Hooker to have cavalry on the flank which was surprised, and also for the weakening of the forces on Howard's flank. Howard did not regard it as within his power or duty to know that Jackson could form a line with 26,000 men within two miles of his right and sweep through at 6 P. M., twenty-four hours after Howard's forces had taken position. He says he took position as ordered and was "riveted to that position." He was deceived, so was Hooker, the blame, he thinks, was not his. This view has never been accepted, however, by the Eleventh Corps, but General Howard fairly declares that neither the Commander, the War Department, nor Congress has ever held him accountable for the havoc of that day.

The Eleventh Corps fought well at Gettysburg shortly after. Howard's narration makes the claim that he selected Cemetery Ridge as the place to fight the battle, and he quotes the answer he gave to Hancock, when the latter arrived, as follows: "General Hancock joined me near the Baltimore Pike between 4 and 5 P. M. and said that General Meade had sent him to represent him on the field"; he says, "I answered as the bullets rent the air, 'All right, Hancock, you take the left of the Baltimore Pike and I will take the right, and we will put these troops in line'; after a few friendly words between us, Hancock did as I suggested." Howard says further: "I had been all day, from breakfast to sunrise, without food and was nearly famished."

The transfer of Howard to the West, and the campaign of the March to the Sea, is fully told after the same unconventional fashion. Howard and Slocum commanded the right and left wings, respectively, of Sherman's army. Howard's work at the head of the Freedman's Bureau, and as an educator, must be the feature of his life on which his fame and reputation are chiefly to be founded.

Volume II is mainly given up to these topics, and they reveal the hearty, zealous, good and extraordinarily useful labors of our author for over forty years.

C. E. L.

* *Autobiography of Oliver Otis Howard, Major-General, U. S. A., 2 Vols.* The Baker & Taylor Company, New York, 1907.

The Spirit of Old West Point.

IN an octavo volume of about 300 pages, brought out by Houghton, Mifflin and Company, Gen. Morris Schaff, a graduate of the United States Military Academy of the Class of 1862, under the title "The Spirit of Old West Point," tells in a most interesting manner of life at West Point half a century ago. The period of which he writes is one of great interest, for it gave a view and enabled him to write of the ruling passion at the approach and during the progress of the Civil War, at an institution which supplied to both sides of the conflict its quickening genius, and taught at the same time the fellowship and charity which contributed so much to soften the sorrows of war and reunite a divided people.

Myself, a graduate whose entire being vibrates with sentiment for my Alma Mater, I feel that I had not fully appreciated the institution's influence upon the life of its students, nor fathomed some of its causes, until I had absorbed the patriotism and pathos of General Schaff's book—now so timely, because in a little while there will be left of the West Point, he and I knew, only The Spirit.

To our countrymen at large, West Point is so suggestive of "a school of blood, or of pomp, or of the mere science of the Art of War," that I am sure those who have the good fortune to read "The Spirit of Old West Point" cannot fail to rise above it all and recognize its far-reaching influence to inculcate in growing youth the manly virtues of the profession of arms and which enter so largely into a nation's greatness.

The paper and the presswork are faultless and the illustrations excellent, though a portion of them are of a period much later than that to which the text refers—but perhaps just as well, as it typifies the mingling to-day of the Old and the New.

H. O. S. HEISTAND.

Map Maneuvers.

UNDER this title is published a small book from "The Staff College Press of Fort Leavenworth," which is a revised edition of the same book originally published at Fort Leavenworth, Kans., in 1907, by Capt. Farrand Sayre, Eighth United States Cavalry, an instructor in the Department of Military Art at the United States Army Staff College.

The revised edition contains some new matter and has been adopted as the official text-book upon that subject in the United States Army School of the Line.

At the outset is found a brief history of the discovery and development of the method of conducting the War Game. The author, however, very properly declines to adhere to this title as descriptive of this most important exercise in the military education of officers of the army.

Then follows a very clear explanation of the maps and material used in the maneuvers, with a chapter on how they are conducted in "one" and "two-side maneuvers."

There is added enough problems to thoroughly illustrate the practical workings of such maneuvers, with a chapter on fire losses and a table for computing them readily. The accompanying map of Fort Leavenworth and vicinity is a very good one, and far superior to the average of maps and accompanying similar works.

This subject is very cleverly treated by the author, and his small book will doubtless have a very good influence in popularizing the study of map maneuvers by our army officers.

E. F. G.

Philippines Constabulary Manual.*

BELATED notice should be taken of the issue early in 1907 of the Manual for the Philippines Constabulary, compiled by Col. W. C. Rivers under the direction of Brig.-Gen. H. T. Allen, Director of the Constabulary.

The volume contains the general and specific duties of the Constabulary, regulations for its interior administration, the general principles of the law of the islands specially applicable in the performance of its duties, with an appendix giving the important enactments of the Philippine Commission, general orders of the military government amending the criminal code of procedure and the President's instructions to the Commission of 1900.

While the scope of the manual is extensive, the exercise of exceptionally good judgment in limiting the subject matter to important details renders the work valuable not only as a manual for the guidance for those concerned but also as a book of reference for anyone interested in the affairs of the islands. The casual reader will find the instructions to justices of the peace, and the rules governing prosecutions, evidence and confessions of special interest and will appreciate not only the difficulties which have confronted army officers detailed to the Constabulary but also the frank and efficient means taken to meet and overcome such difficulties. The binding, paper and printing are excellent; the index is ample.

F. W. C.

Over Seas in Early Days.

LIEUTENANT JOHN FARLEY, United States Army, while on a trip to Europe in 1828-29, wrote a series of interesting letters to relatives in America that have been edited and published by his son, Joseph Pearson Farley, U. S. A.† The reader is struck at the outset with the difference in time consumed in making the ocean trip then and now. The *Lucania* and *Mauretania* consume less time now in going across than our writer in going from Washington to Cape Henry.

It is certainly interesting to read of General Lafayette from the pen of one who occupied the position of guest in his home, and who writes to the family rather than for publication. But our writer sustains the interest of his readers throughout by his fine descriptive powers of places and persons.

After visiting the principal places of interest on the Continent, he fittingly recognizes the beauty of Naples, but in noting the depravity of morals of its inhabitants, says, "So little is there of virtue that a man's worth may be reckoned by his distance from the gallows. I felt happy in leaving it, and am more convinced than ever of the superiority of our own country by comparison."

E. F. G.

* (Manila; Bureau of Printing; pages 219; with appendix and index, pages 336. Net pesos 1.75.)

† The greater part of these letters, edited by General Farley, appeared in the *JOURNAL* (May, July, September, November, 1906).

War and the World's Life.

COLONEL F. N. MAUDE, C. B., long well known to the military world through his able writings, has surpassed all his former efforts in "War and the World's Life," which comes from the press of Smith, Elder & Company, 15 Waterloo Place, London. The breadth of the subject is engaging and its treatment is masterful.

Colonel Maude in this work writes not alone for Britons nor for professional readers; he writes for the whole world and for all readers, professional or lay. He makes so clear that lack of preparation for war invites attack and courts disaster, that in our own country, where the great national obsession is military negligence, the work would be of especial value if the knowledge and wisdom between its covers could be disseminated among our people and applied to our conditions.

One who reads "War and the World's Life" can not fail to see in war the counterpart of commercial competition, nor escape the conviction that the elements which sustain successful war are the same as those that make a nation great, contented and powerful in peace.

H. O. S. H.

Field Service.

UNDER the above title the Warnock Uniform Company of 19 West 21st Street, New York, publishes a small book prepared by Capt. James A. Moss, Twenty-fourth United States Infantry, which contains considerable information for both enlisted men and officers of the army and National Guard about duties in the field. The enlisted man is told what he will want and how he shall carry it. The officer is advised—he who has had experience is reminded—as to what he will want in the way of supplies of all kinds, likewise as to what considerations govern in the selection of camps, the method of loading wagons, the preservation of water from contamination, the entraining and detraining of troops and animals, the care of animals, etc., etc. In brief, this small book contains an outline of the daily life and duties of a command in the field and is useful to all grades.

E. F. G.

Lincoln at Gettysburg.

IN a neat little volume of about a hundred pages, published by A. C. McClurg & Co., of Chicago, Mr. Clark E. Carr, author of "The Illini," gives a comprehensive history of the famous speech made by the martyred President upon the occasion of the dedication of the National Cemetery at Gettysburg—a speech coldly received at the time of its utterance, and whose sublime beauty was discovered in foreign lands before it dawned upon the people to whom it was addressed, but who now esteem it as a "triumph of literary achievement"—a modern classic.

The volume contains other facts and matter connected with the dedication of our first Federal Camping Ground of the Dead, that give it added interest, and concludes with "Fifty Years After," a reverie by the author which further augments its literary worth.

There are portraits of President Lincoln and several of his associates.

H. O. S. H.

Our Exchanges.

American Society of Civil Engineers (to date).
Army and Navy Journal (to date).
Army and Navy Chronicle (London) (to date).
Artilleri-Tidskrift (to date).
Arms and the Man (to date).
Bulletin American Geographical Society (March).
Canadian Military Institute (to date).
Current Literature (April).
Journal of the Association of Military Surgeons (April).
Journal of the Royal Artillery (April).
Journal of the United States Artillery (April).
Journal of the U. S. Cavalry Association (April).
Journal of the U. S. Infantry Association (March).
Journal of the Royal U. S. Institution (April).
Journal of the Western Society of Engineers (April).
La Revue Technique (to date).
La Belgique Militaire (to date).
Our State Army and Navy (Penna.) (to date).
Political Science Quarterly (March).
Proceedings of the U. S. Naval Institute (March).
Review of Reviews (to date).
Revista di Artiglieria e Genio (April).
Revista Del Ejercito Y Marina (April).
Revue de l'Armee Belge (to date).
Revue Militaire (April).
Revue Artillerie (April).
Royal Engineers' Journal (to date).
The Army and Navy Life (to date).
The Arrow, Indian Industrial School (to date).
The Cavalry Journal (London) (April).
The Century Magazine (April).
The District Call (to date).
The Medical Record (to date).
The Pennsylvania German (April).
The Popular Science Monthly (April).
The Scientific American (to date).
The Seventh Regiment Gazette (to date).
United Service Gazette (London) (April).
United Service Magazine (London) (April).

Received for Library and Review.

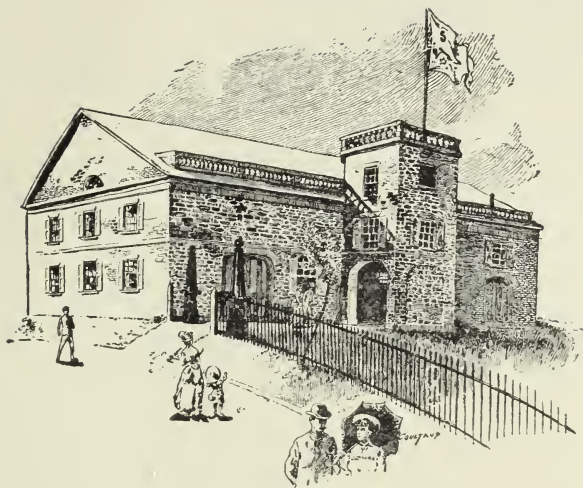
The Soldier's Score Book for U. S. Magazine Rifle, Model 1903. By Capt. Edgar T. Conley, Fifteenth U. S. Infantry (Kansas City, Mo.). Franklin Hudson Pub. Co., 1908.

Jamestown Trip of the Ninth Infantry, N. G. Pa., 1907. By R. W. Ferrell. Press of the Wilkes-Barre Record, 1908.

Report on the Construction of Lock and Dam No. 4, Ohio River. By E. N. Johnson, Lieut. Corps of Engrs., U. S. Army, Washington Barracks, D. C., 1908.

- A Field Corps of the Signal Corps in Maneuvers.* By Lieut. W. N. Hughes, Jr., Signal Corps, U. S. A.
- Sixty Years in Upper Canada, With Autobiographical Recollections.* By Charles Clarke, Late Clerk of Legislature of Ontario. (Toronto, 1908) William Briggs.
- The Panama Canal and the Daughters of Danaus.* By John Bigelow, Second Edition. (New York) The Baker and Taylor Co., 1908.
- Optics of the Telescope.* By Capt. W. Ellenshaw, R. A. (London) Gale & Polden, Ltd., 1908.
- Stuart's Cavalry in Gettysburg Campaign.* By John S. Mosby. (New York) Moffat, Yard & Co., 1908.
- Manual for the Philippines Constabulary.* Manila, Bureau of Printing, 1907.
- The Pistol and Revolver.* By A. L. A. Himmelwright, Pres. U. S. Revolver Association, etc. (New York) J. J. Little & Co., 1908.
- International Law and Diplomacy of the Spanish-American War.* By Elbert J. Benton, Ph. D. (Baltimore) The Johns Hopkins Press, 1908.
- Twenty-first Annual Report of the Interstate Commerce Commission.* (Washington) Government Printing Office, 1907.
- Year Book of the Pennsylvania Society,* 1908. Edited by Barr Ferree, Secretary of the Society.
- The Shenandoah Campaigns of 1862 and 1864, and The Appomattox Campaign, 1865.* The Mil. Hist. Society of Mass., 1907.
- The Coming Struggle in Eastern Asia.* By B. L. Putnam Weale. Mac-Millan & Co., Ltd. (New York.)
- Notes on Magnetism and Electricity.* By J. S. Iredell, Army Service Corps. (London) Gale & Polden, Ltd., 1908.
- Guide to Army Signalling.* By Ronald L. Q. Henriques, The Queen's Regt. (London) Gale & Polden, Ltd., 1908.





THE MUSEUM OF THE MILITARY SERVICE INSTITUTION OF THE UNITED STATES,
GOVERNOR'S ISLAND, NEW YORK HARBOUR.

Editor's Bulletin.

Award
of
Gold
and
Silver
Medals.

THE Gold Medal of the INSTITUTION, \$100, and Certificate of Life Membership for the best essay (of eight) submitted on "The Military Necessities of the United States, and the Best Provisions for Meeting Them," has been awarded to Capt. ALFRED W. BJORNSTAD, Twenty-eighth Infantry. The second prize, Silver Medal, \$50 and Honorable Mention, to Major WILMOT E. ELLIS, Coast Artillery Corps.

Award
of
Santiago
Prize.

The Santiago Prize for 1907 (\$50) has been awarded to Capt. ARTHUR M. EDWARDS, Subsistence Department, for an essay entitled "The Proposed Garrison Ration."

Colonel
Scriven's
New
Book.

The Transmission of Military Intelligence—A series of papers by Lieut.-Col. G. P. SCRIVEN, Signal Corps, U. S. A., which has been reprinted from this JOURNAL and issued in book form by the Chief Signal Officer of the Army for the information of the Officers of the Army, and others whose duties require a knowledge of the subject. Besides full descriptions of the latest field equipment for the mobile army, the book treats of the lines of communication in aid of coast defense. It should be invaluable to the Signal Corps of the National Guard, as well as to the Line of the Army.

**The
Company
Non-Com-
missioned
Officer**

"The Company Non-Commissioned Officer," etc., is the subject for the Seaman Prize (No. 2) for the current year (see note on page 526). Its importance, especially to the Line, should stimulate competition and lead to excellent results in military training and company administration.

**National
Guard
and
Member-
ship**

National Guardsmen, both commissioned and enlisted, are eligible, and are cordially invited to become Associate Members of the MILITARY SERVICE INSTITUTION; commissioned officers, upon their own application, and non-commissioned officers and men, on written application, endorsed by a member or associate of the INSTITUTION. For additional information address the "Secretary MILITARY SERVICE INSTITUTION, Governor's Island, N. Y."





Journal
of the
Military
Service
Institution

1878

1908

Governor's
Island
N. Y. H.

THE JOURNAL

JULY-AUGUST, 1908



OME papers received for publication in the JOURNAL:

I. "THE MILITARY NECESSITIES OF THE UNITED STATES AND THE BEST PROVISIONS FOR MEETING THEM."

(Silver Medal Essay.) By Major W. E. Ellis, Coast Artillery.

II. "UNIVERSAL MILITARY SERVICE," By Brig.-Gen. Thomas M. Anderson, U. S. A.

III. "MILITARY BANDS." IV. By Major F. A. Mahan, U. S. A. (retired). (Concluded.)

IV. "THE ARMY SIGNAL SCHOOL," By Captain A. C. Knowles, 30th Infantry (Instructor A. S. S., Fort Leavenworth).

V. "CAVALRY OPERATIONS IN THE RUSSO-JAPANESE WAR." IV. Concluded. (III.) By Lieut.-Col. J. C. Gresham, 14th U. S. Cavalry.

VI. "MILITARY AND DIPLOMATIC ISSUES IN THE HISTORY OF THE MOROCCAN PROBLEM," By Maurice de L. de Barmville.

VII. TYPES AND TRADITIONS OF THE OLD ARMY. "SERVICE OF THE FIRST TROOP PHILADELPHIA CITY CAVALRY IN JUNE-JULY, 1863." By a Private Recruit.

THE PUBLICATION COMMITTEE invites contributions of original papers, translations and comments upon current topics. Attention is called to "Gold Medal," "Seaman," "Short Paper," and "Santiago" prizes described elsewhere.

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Initiation fee and dues for first year \$2.50; the same amount annually for five years subsequently. After that two dollars per year. This includes the Journal. Life membership \$50.



Gold Medal—1908.

First Prize—Gold Medal, \$100 and Life Membership.

Second Prize—Silver Medal, Honorable Mention and \$50.

I.—The following Resolution of Council is published for the information of all concerned:

Resolved, That a Prize of a Gold Medal, together with \$100 and a Certificate of Life Membership, be offered annually by THE MILITARY SERVICE INSTITUTION OF THE UNITED STATES for the best essay on a military topic of current interest, the subject to be selected by the Executive Council, and a Silver Medal and \$50 to the first honorably mentioned essay. Should either prize be awarded more than once to the same person, then for each award after the first, a *Clasp* shall be awarded in place of the medal.

1. *Competition to be open to Members and Associate Members only.**

2. Each competitor shall send three copies of his essay in a sealed envelope to reach the Secretary *on or before January 1, 1909*. The essay must be strictly anonymous, but the author shall adopt some *nom de plume* and sign the same to the essay, followed by a figure corresponding with the number of pages of MS.; a sealed envelope bearing the *nom de plume* on the outside and enclosing full name and address, should accompany the essay. This envelope to be opened in the presence of the Council after the decision of the Board of Award has been received.

3. The prize shall be awarded upon the recommendation of a Board consisting of three suitable persons chosen by the Executive Council, who will be requested to designate *the essay deemed worthy of the prize*; and also in their order of merit those deserving of honorable mention.

In determining the essay worthy of the prize, the Board will be requested to consider its professional excellence, usefulness and valuable originality, as of the first importance, and its literary merit as of the second importance. Should members of the Board determine that no essay is worthy of the prize, they may designate one or more essays simply as of honorable mention; in either case, they will be requested to designate one essay as first honorable mention. Should the Board deem proper, it may recommend neither prize nor honorable mention. Should it be so desired, the recommendation of individual members will be considered as confidential by the Council.

4. The successful essay shall be published in the Journal of the Institution, and the essays deemed worthy of honorable mention shall be read before the Institution, or published, at the discretion of the Council, which reserves the right to publish any other essay submitted for a prize, omitting marks of competition.

5. Essays must not exceed ten thousand words, or twenty-five pages of the size and style of the JOURNAL (exclusive of tables), nor contain less than five thousand words.

II.—The Subject selected for the Prize Essay of 1908 is

**“WHAT IS THE CAUSE OF THE RECENT FALLING OFF IN THE
ENLISTED STRENGTH OF THE ARMY AND NAVY, AND WHAT
MEANS SHOULD BE TAKEN TO REMEDY IT?”**

III.—The Board of Award is named as follows:

Rear Admiral CASPAR P. GOODRICH, U.S.N.
Major-General WILLIAM F. DUVALL, U.S.A.
Brig.-General EDWARD S. GODFREY, U.S.A.

GOVERNOR'S ISLAND, N. Y.,
Jan. 1, 1908.

T. F. RODENBOUGH,
Secretary.

*As amended Nov 13, 1907.

1908

Annual Prizes—1908

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One Hundred Dollars.

Seaman
Prize
I

For best essay on a subject selected by Major Seaman and approved by Council; competition open to all officers and ex-officers of Army, Navy, Marine Corps, Marine Hospital Service, Volunteers or National Guard; in other respects same as Gold Medal prize except that essays are limited to 15,000 words, and are due November 1.

Subject: "The Medical Department of the United States Army: Upon what lines should its much needed Reorganization be instituted?"

Board of Award: Col. P. F. HARVEY, M.D.; Capt. CHARLES LYNCH, M.D., and Capt. N. S. JARVIS, M.D., U. S. A.

Fifty Dollars.

Seaman
Prize
II

(Rules same as Prize I, except that essays shall comprise not less than 2,000 nor more than 5,000 words.)

Subject: "The Company Non-Commissioned Officer: How can his efficiency be best promoted and his re-enlistment be secured?"

Board of Award: Brig.-Gen. J. P. MYRICK, U. S. A.; Lieut.-Col. R. L. HOWZE, U. S. A., and Capt. J. H. McRAE, Gen. Staff.

THE SANTIAGO PRIZE.

(Founded by the National Society of the Army of Santiago de Cuba.)

Fifty Dollars.

Santiago
Prize

For "best article upon matters tending to increase the efficiency of the individual soldier, squad, company, troop or battery," published in the JOURNAL M. S. I. during a twelvemonth, ending December 1; awarded upon recommendation of Board selected by President N. S. A. S. C.; competition limited to officers of the Army and National Guard below grade of Lieut.-Colonel; essays not less than 1,000 nor more than 5,000 words.

HANCOCK PRIZE.

Fifty Dollars.

Short Paper
Prizes

For best short paper on matters affecting the *Line* of the Army, published in the JOURNAL during twelve months ending May 1.

FRY PRIZE.

Fifty Dollars.

For best short paper on matters affecting the *General Service* not covered by Hancock Prize, published during the twelve months ending Sept. 1.

Essays to be not less than 1,500 nor more than 3,500 words.

MAY-JUNE

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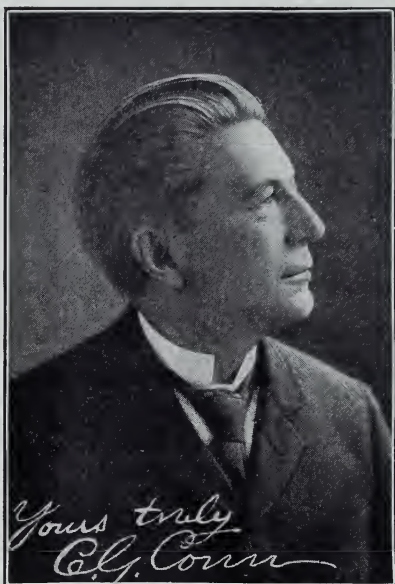
JOURNAL OF THE MILITARY SERVICE INSTITUTION

1878

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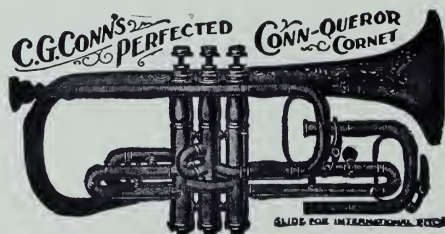
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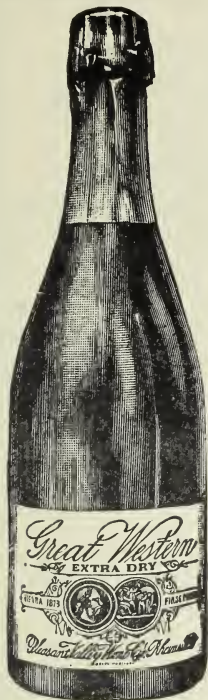
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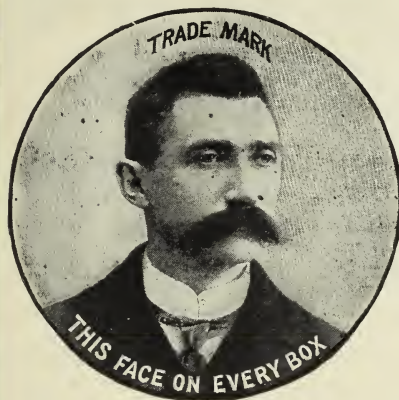
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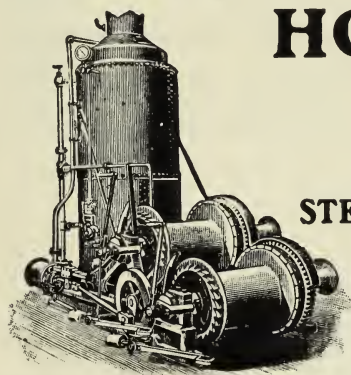
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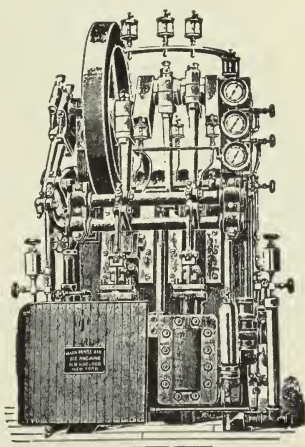
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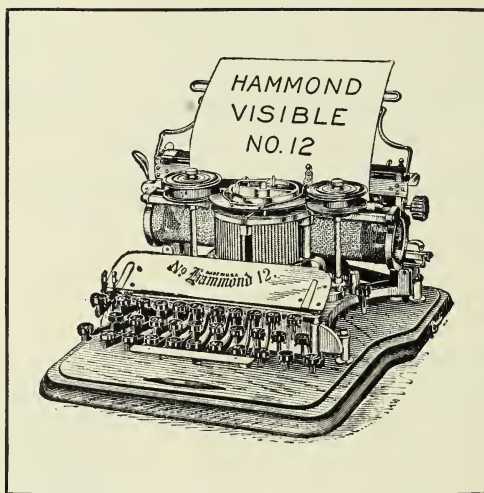
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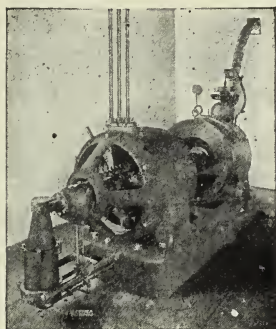
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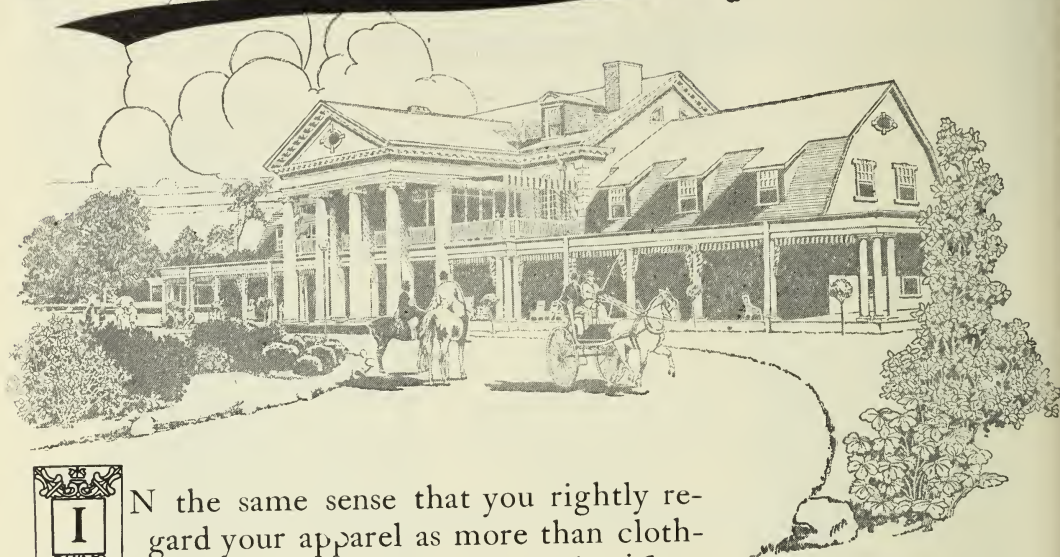
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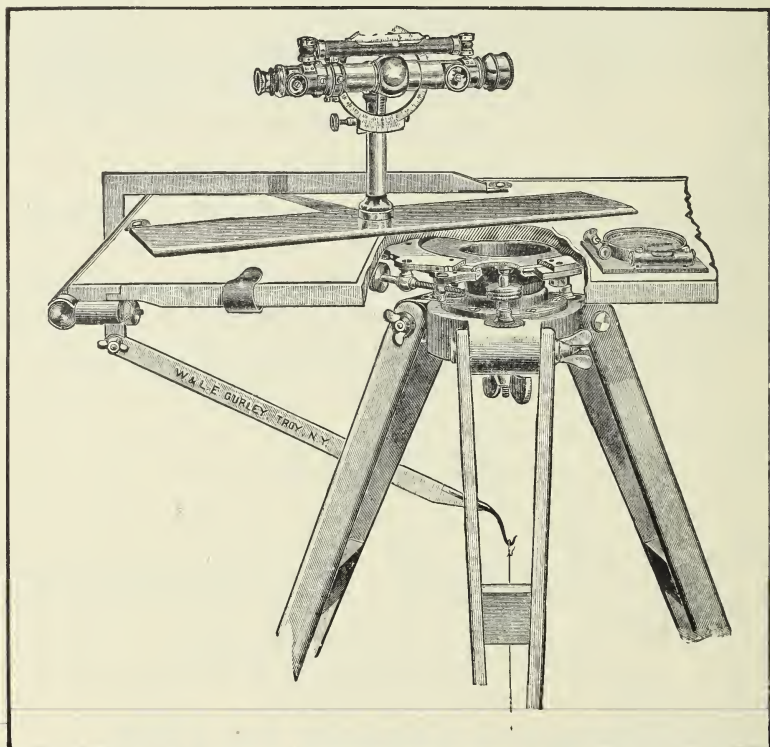
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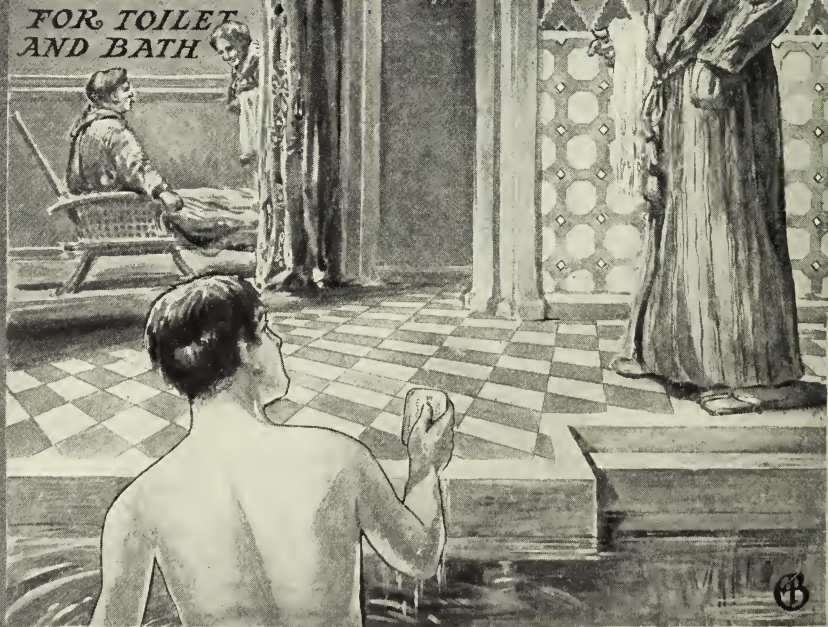
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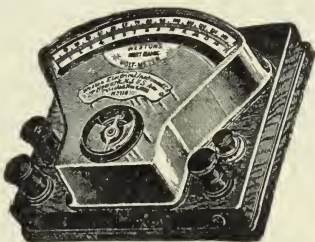
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